

MINNESOTA VALLEY
NATIONAL WILDLIFE REFUGE

Bloomington, Minnesota

ANNUAL NARRATIVE REPORT

Calendar Year 1987

U.S. Department of the Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

INTRODUCTION

The Minnesota Valley National Wildlife Refuge, Recreation Area and State Trail was established to protect the lower Minnesota River Valley as a result of the effort of local citizen groups.

Located along a 72 mile stretch of the Minnesota River between Fort Snelling and Le Sueur, approximately 24,000 acres of floodplain marsh, grasslands and forests will ultimately be included within the refuge, recreation area, and state trail.

The refuge portion will be 12,200 acres when completed and managed to provide for a diversity of plants and animals and to provide opportunities for people to observe and learn about the valley's wildlife. The 7,000 acres currently in the refuge are scattered in the seven separate units of the refuge.

The recreation area and state trail are managed by city and county governments and the Minnesota Department of Natural Resources. Upon completion, the state trail will link the refuge units and provide hiking, bicycling, horseback riding, and cross-country skiing opportunities for the two million people who live in the Twin Cities metro area.

The refuge is a green belt of large marsh areas bordered by grain terminals, highways, residential areas, office buildings and farm fields. A typical Valley cross section starting at the blufftop ranges from an oak-dominated hillside forest to oak savannas; then, wetlands ranging from bogs and seeps to marshy lakes. The cottonwood-lined Minnesota River completes the environment.

The dry grasslands are characterized by encroaching shrubs like sumac, hazel, and prickly ash. Native prairie grasses include big and little bluestem, switchgrass, and Indian grass. Remnant prairies and savannas provide a nesting habitat for dabbling ducks, pheasants, and a variety of songbirds.

Hillside forests include an overstory of oak, elm, maple, and other trees, with dogwood, chokecherry and other shrubs beneath. Forested areas on the floodplain are dominated by silver maple, willow, cottonwood, and elm trees. Small willows, dogwoods, and alders line forest edges, while inside the woods, there is a carpet of nettles with occasional river bank grape.

Wetlands in the Valley's bottoms are thick with reed canary grass, cattail, and river bullrush. Water lilies, duckweed, and pondweeds thrive in open water areas. Over 250 species of birds use the area, either year-round or during migration. About 150 of these species nest in the Minnesota River Valley. Bald eagles use the area for resting and feeding each winter, spring, and fall. This wildlife diversity is complemented by at least 50 species of mammals and 30 species of reptiles and amphibians.

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N/R - Nothing to Report

MINNESOTA VALLEY NATIONAL WILDLIFE REFUGE
Bloomington, Minnesota

ANNUAL NARRATIVE REPORT

1987

A. HIGHLIGHTS

- Full funding for the construction of the Minnesota Valley National Wildlife Refuge Wildlife Interpretation and Education Center has been appropriated. (Section H.1. and J.3.g.)
- The removal of white-tailed deer on the refuge continues with the addition of sharpshooting. (Section G.8.)
- Waterfowl production is at all-time high due to favorable water conditions. (Section G.3.)
- Significant staff changes continue. (Section E.1.)
- Violations on the upswing. (Section H.17.)
- Wetland management capability increases dramatically. (Section F.2.)
- Highly successful controlled burning season. (Section F.9.)
- Superstorm hits in mid-summer. (Section B.)
- Farm Bill activities begin in Six County area. (Section E.7.)



The wood duck retains it's status as the most abundant waterfowl species and the refuge symbol. MNV 7868



Breeding pairs of blue-winged teal, mallards and wood ducks were more abundant this year. MNV 8196



The return of pheasants in good numbers is an indicator of more favorable habitat conditions on the refuge. MNV 8190

B. CLIMATIC CONDITIONS

The year 1987 was filled with weather extremes: The winter was unusually warm and snow free; then in mid-summer a superstorm dumped 10 inches of rain on the Twin Cities in a 24-hour period.

The first four months of the year were among the warmest in nearly 170 years.- Temperatures during those months averaged at least 7.5 degrees above normal. Only 17 inches of snow fell on the Twin cities during the season, which includes November and December, 1986. The average is normally 50 inches. The cross-country ski trails were barren throughout the winter.

The warm beginning of 1987 turned into a string of hot and humid days in late spring and early summer. The July 23 super storm set a 24-hour rainfall record for the Twin Cities. The floodplains of the Minnesota River Valley swelled in the downpour. The storm's most telling scar was along the Minnesota River bluff in southeast Eden Prairie, where a 90 inch sewer interceptor serving many southwest suburbs broke, carving a huge gash in the bluff and sending millions of gallons of untreated sewage into the Minnesota River. Four nearby homes were evacuated. Not surprisingly, July became the wettest month since the 1830's.

Despite the storm of the century, on average, the year was relatively dry and warm.



The superstorm of July 23 caused unusual
damage like this storm sewer explosion
at the Bass Ponds. MNV 7983

C. LAND ACQUISITION1. Fee Title

Using the \$1,516,000 appropriation of Land and Water Conservation Funds available for this refuge in Fiscal Year 1986, the Regional Office Realty Division purchased or secured options on the following listed tracts.

Land Owner Name	County	Total Acres	Appraised Value	Option In Hand	Option Accepted
Sweeney Et Al., Robert	Scott	102.07	\$81,700.00	Yes	Yes
Budnick, Rudy	Henn.	1.70	2,700.00	Yes	Yes
Twin City Radio Control	Scott	35.41	48,150.00	Yes	Yes
Astleford Construction Co.	Dakota	28.33	127,485.00	Yes	Yes
Valleyview Healthcare Cen.	Scott	86.00	60,200.00	Yes	Yes
Michael, James H.	Scott	58.10	36,500.00	Yes	Yes
Walbaum, Raney	Henn	20.31	116,000.00	Yes	Yes
Bradberg, Inc.	Scott	12.63	530,362.75	Yes	Yes
		344.55	\$1,003,097.75		

FY - 87 Funds Available \$1,516,000.00

Funds Obligated to date 472,735.00

Balance Remaining \$1,043,265.00 69%

Land Acquisition Status (Acres) - December 1987

Unit	FWS Owned/Leased	Private	Public	Meandered	Total
Louisville Swamp	2,359	266	---	---	2,625
Chaska	367	198	25	---	590
Wilkie	1,654	108	78	310	2,150
Upgrala	475	927	---	1,046	2,448
Bloomington Ferry	143	241	---	---	384
Black Dog Lake	1,262	218	60	---	1,540
Long Meadow Lake	782	1,103	596	---	2,481
Total	7,042	2,061	759	1,356	12,218

2. Easement

Nothing to Report

3. Land Acquisition Other

Eighty (80) acres of wetland located south of Continental Grain in Savage and owned by the Minnesota Department of Transportation were incorporated into the refuge this year. The Transportation Department had acquired this floodplain land many years ago as part of a right-of-way transaction. The Department had planned to dispose of it as excess property but subsequent floodplain protection laws and its designation as part of the proposed Minnesota Valley National Wildlife Refuge made the sale to private persons less viable.

Unfortunately, the Service cannot use public funds to purchase public lands, therefore, it didn't look like these lands would ever be added to the refuge. However, through persistent prodding by the refuge staff, the Minnesota Departments of Transportation and Natural Resources, and the St. Paul Environmental Field Office were eventually able to work out a land use agreement. The Department of Transportation issued a limited use permit allowing the refuge to manage the land as part of the Wilkie Unit in exchange for a token amount of mitigation credit.

The provisions of the limited use permit allow the Service to manage the land as any other part of the refuge but the Department retains fee title and can cancel the permit at any time. The cancellation provision is troublesome, but we believe as more time passes, it will

be difficult to cancel the permit due to increased public interest and appreciation of the refuge.

A similar opportunity came about when the Metropolitan Waste Control Commission (Commission) requested a small right-of-way for an expansion of a sanitary sewer into the Black Dog Unit. Since there was very little disturbance to the refuge as a result of the new right-of-way, the request was granted and subsequent time negotiations resulted in the inclusion of approximately eighty (80) acres of Commission land into the refuge's Wilkie Unit. The provisions of this permit are quite similiar to the Transportation Department permit.

D. PLANNING

1. Comprehensive Plan/Master Plan

There were no ammendments or changes to the refuge master plan this year. The document continues to be an excellent guide for the refuge staff and, although it is several years old and many things have changed around the refuge, the plan is still valid.

2. Management Planning

The management planning this year was devoted to the updating of several management plans and the submission and subsequent approval of a new Disease Prevention and Control Plan. The Hunting and Trapping Plans were updated and approved but the Search and Rescue Plan and the Safety Plan were returned with the suggestion that we make slight revisions and resubmit in 1988. The Safety Plan had been resubmitted and is now approved.

3. Public Participation

The early years of this relatively new refuge were filled with public participation events but in more recent years there have been few significant changes that require public meetings. Again this year there were public hearings about refuge deer hunting and numerous review meetings with a variety of individuals and groups about the plans for the new Wildlife Interpretation and Education Center.

4. Compliance with Environmental Mandates

The refuge Environmental Impact Statement continues to fulfill the mandated compliance needs except for local construction permits. This year there were no refuge construction jobs that required any permits from another agency.

Most of the work in this area was reviewing environmental assessments on nearby highway projects such as Highway 169 in Shakopee and Highway 77 in Bloomington, and the preparation of environmental assessments for right-of-way requests. Environmental Assessments were prepared for a Minnesota Department of Transportation's desilting basin on the Upgrala Unit near Moon Valley, the Metropolitan Waste Control Commission's request for a sewer line right-of-way on the Black Dog Unit, and a request by Minnegasco for a realignment of their pipeline across the east end of Black Dog. In the latter case the pipeline was eventually located on land owned by the Minnesota Department of Transportation but through the involvement of the refuge staff the pipeline right-of-way will serve as the route of a State trail which is consistent with the refuge master plan. See Section J.3.d. for the status of the refuge environmental assessment on mosquito control.

5. Research and Investigations

Several research projects have been proposed for or conducted on the refuge in 1987. A brief summary of each is given below.

- Forced Copulation Behavior in Mallards (*Anas platyrhynchos*), Ph.D. study conducted by Susan Evarts, University of Minnesota, Department of Ecology and Behavioral Biology.

Although mallards are monogamous and form new pair bonds before each breeding season, forced copulations have been observed between paired females and males other than their mates. The focus of this study is to determine whether forced copulation behavior contributes to male reproductive success, whether it is deleterious to the female and how paired males solve the conflict between male-guarding and forced copulation activity.

The summer of 1987 was Sue's second field season on the refuge. Her first field season in 1986 met with minimal success due to extensive flooding of long duration. Very little nesting cover was available for mallards in the river valley, resulting in few pair bonds for the researcher to monitor. However, no flooding occurred in 1987, and many mallard pair bonds were observed and monitored.

Sue will spend one more field season on the refuge in the summer of 1988 which will complete her Ph.D. field studies.

Study of Impacts to the Savage Fen From Construction of Scott County Highway 27, conducted by Applied Research and Technology under contract to the Environmental Protection Agency.

The proposal to construct Scott County Highway 27 through the Savage Fen was opposed by the Environmental Protection Agency under Section 404(c) of the Clean Water Act. Therefore, they contracted with an environmental consultant to investigate groundwater movement in the surficial peat soils and its relationship to recharge rates and the vegetative community within the suspected impact zone of the proposed highway. It is expected to take one year to complete the study, including one field season, (already completed in the spring and summer of 1987) and a follow-up literature review. The report should be available in June of 1988.

The Savage Fen Complex includes approximately 230 acres of which 143 acres is wetland. The refuge owns 26 acres in the Savage Fen, consisting entirely of wetland.

The Effects of *Bacillus thuringiensis israeliensis* (BTI) on Aquatic Invertebrate Communities, Fish and Wildlife Service funded research study conducted by the Missouri Cooperative Unit.

Approximately \$27,000 was allocated to the refuge to initiate a study of BTI, a mosquito larvacide. The refuge is included within a mosquito control district where larviciding is the predominant method

used to control pest mosquito species. BTI, a bacterial larvicide used on the refuge, is a relatively new mosquito larvicide which has not been extensively field tested but has been shown in laboratory experiments to be lethal to chironomids, an invertebrate of major importance in the waterfowl diet. Therefore, investigation of BTI's effect on invertebrate communities was requested to determine if its use can have a significant effect on waterfowl production and use of the refuge.

The study is expected to require two field seasons to collect information on chironomid response to BTI applications and on changes in invertebrate community morphology and abundance. Field work is expected to begin in spring of 1988.



The Black Dog and
Savage Fen areas have
provided safe
harborage for such
plants as the small
yellow lady slipper.
MNV 7758



Several State threatened plants such
as the twig-rush are found
in the Savage Fen. MNV 7764

E. ADMINISTRATION

1. Personnel

Minnesota Valley National Wildlife Refuge has experienced a lot of personnel changes during 1987. The four vacancies during the year created an extra workload for the remaining staff. Some of the vacancies were not filled for three to nine months after the vacancy.

The following is a list of personnel changes during the year:

Kate Winsor spent from May 5th, to September 20th, working at Seney National Wildlife Refuge. Kate is continuing her graduate studies at the University of Minnesota while working part time as a Park Ranger at the refuge. Kate received a promotion to a GS-5 on November 22nd.

John Schomaker joined the staff on August 2nd, as our Senior Outdoor Recreation Planner. John was previously working for the Forest Service.

Pam Tucker transferred to Minnesota Valley on July 17th, from the Regional Office. Pam is our Secretary.

Mary Mitchell, Biological Technician was promoted to a GS-6 effective July 5th.

Tom Roster and Jeff Schultenover were our two Bio-Aids for the summer and also served as supervisors for our Youth Conservation Corps enrollees.

William Botsford, Outdoor Recreation Planner was reassigned to Minnesota Valley on July 17th, from Ottawa National Wildlife Refuge.

Sue Linneman left the staff at Minnesota Valley to work for South Dakota Fish and Game Department, then returned as a Biological Technician for a short stay. Sue was selected as Refuge Manager Trainee at Crab Orchard National Wildlife Refuge. She will be leaving in early January, 1988.

Shirley Koskiniemi, Clerk/Typist resigned August 12th.

The following is a list of employees who were or are members of the staff at Minnesota Valley in 1987.

<u>Permanent Full-Time</u>	<u>Grade</u>	<u>EOD Date</u>	<u>Departure Date</u>
1. Crozier, Edward S. Refuge Manager	GM-13	03/11/79	
2. Schreiner, Terry M. Assistant Refuge Manager	GS-11	07/21/85	
3. Schomaker, John H. Outdoor Recreation Planner	GS-11	08/02/87	

4. Botsford, William Outdoor Recreation Planner	GS-09	07/17/87	
5. Moyer, Edward R. Outdoor Recreation Planner	GS-07	11/14/82	
6. Mitchell, Mary S. Biological Technician	GS-06	10/01/84	
7. Linneman, Susan M. Secretary	GS-05	07/07/85	04/18/87
Biological Technician	GS-05	09/13/87	01/16/88
8. Irrthum, Paul F. Maintenance Worker	WG-08	03/23/80	
9. Tucker, Pamela K. Secretary	GS-05	7/17/87	
10. Koskiniemi, Shirley J.	GS-03	07/07/86	08/12/87
<u>Permanent Part-Time</u>			
11. Winsor, Catherine J. Park Ranger	GS-05	03/31/85	
<u>Temporary Appointments</u>			
12. Roster, Tom Biological Aid	GS-03	06/21/87	09/25/87
13. Schultenover, Jeff Biological Aid	GS-03	06/07/87	11/06/87
<u>Youth Conservation Corps Crew</u>			
14. Stevens, Luchelle			
15. Gawtry, Stephen			
16. Werner, Nathan			
<u>Regional Biologist</u>			
17. Wilds, Stephen D. Regional Biologist, RF-1	GS-12	10/01/85	
18. Eldridge, Jan L. Assistant Regional Biologist, RF-1	GS-11	10/01/85	

*Ms Winsor has been reassigned for two summer seasons to Seney National Wildlife Refuge.



The 1987 Staff from left to right:
 J. Eldridge, P. Tucker, W. Botsford, T. Schreiner
 J. Schomaker, P. Irrthum, E. Moyer, K. Winsor
 M. Mitchell, E. Crozier, S. Linneman MNV 8284



YCC Enrollees: L. Stevens, N. Werner, S. Gawtry
 Biological Aids: T. Roster, J. Schultenover MNV 8023

2. Youth Programs

a. Youth Conservation Corps

Minnesota Valley National Wildlife Refuge hosted its sixth Youth Conservation Corps (Corps) Program in 1987. Luchelle Stevens, Stephen Gawtry, and Nathan Werner were selected randomly from a pool of sixteen applicants. No one was hired specifically as a Corps supervisor but our two seasonal GS-03 Bio-Aids filled in as primary field supervisors for the summer. Environmental Awareness was integrated within the Corps projects wherever possible. All enrollees and refuge staff attended an excellent six hour American Red Cross "Metro-Survival" First Aid session in June as well as a Department of Natural Resources Boat Safety course in July. There were no Corps accidents this summer.

Boundary posting was the Corps crew's most significant project this year; 166 enrollee hours were recorded for it. Paired with our two Bio-Aids they either posted and/or reposted 24 miles of refuge boundary.

Other projects included post and rail fence at two locations, an information kiosk for a new trailhead at the Black Dog Preserve, directional signs for two trails, and moving a Unit identification sign at the Wilke Unit. They also helped install water gauges, restocked the Jabs Farm cross country ski warming hut with firewood, and performed miscellaneous equipment and facility maintenance.

b. Twin Cities Tree Trust

The Tree Trust is a summer youth employment program founded under the Job Training Partnership Act. Directed by Dave Hawes and supervised in the field this year by Chris Gemlo, Mark Grumwald, and Donna Marden, two crews of about a dozen young adults worked 2 1/2 weeks on the refuge last summer.

The Twin Cities Tree Trust has built its reputation on its ability to focus on major projects and to do them well. The Black Dog Crew built 180 feet of post and rail fence to help establish a new trailhead and the Bass Ponds crew built a 72 foot long bridge with handrails for our "Caretaker's Walk" interpretive trail.



The Tree Trust crew replaced the unsafe foot bridge at the Bass Ponds. MNV 7955

3. Other Work Programs

Nothing to Report

4. Volunteer Program

In 1987, 102 individuals, representing many different segments of the community, donated over 2,000 hours of volunteer work to the refuge. Minnesota Valley National Wildlife Refuge volunteers are actively involved in numerous projects such as providing artwork for newsletters, increasing the slide collection, picking up litter, recording bird activities, monitoring public use, maintaining the library, and carrying out various office and maintenance tasks.

During its first full year, the Volunteer Ranger program proved to be attractive to many volunteers. Each Volunteer Ranger routinely visits an area of the refuge and notes wildlife activities, visitor use, and trail conditions. The Volunteer Rangers spent 1,000 hours on the refuge in 1987.

To maintain the ongoing support of refuge volunteers, a monthly newsletter is mailed to each individual's home, informing volunteers of refuge activities and thanking individuals for their

contributions. Volunteers are frequently invited to bring guests to special wildlife movie showings and informative programs held at the refuge headquarters. In May, the refuge staff hosted the annual volunteer appreciation dinner.

In addition to these indirect forms of appreciation, volunteers are presented with mugs, t-shirts, and jackets (contributed by the Friends of the Minnesota Valley). Pins and certificates are also awarded for special achievements.

Mike Hild contributed the largest amount of volunteer hours during 1987. He spent over 400 hours working on various maintenance and office projects. Mike will be attending classes at the University of Minnesota in 1988, but if his schedule permits, he plans on continuing his work at the refuge.



Volunteers "taking pride" in the refuge at the annual clean-up day. MNV 7808

5. Funding

The following is an account of funds appropriated for Minnesota Valley National Wildlife Refuge and amounts expended in specific areas.

	<u>Allocation</u>	<u>Expenses</u>
Minimum Operations	\$285,100	
Salaries		\$181,220
Utilities		6,384
Service Contracts		18,398
Motor Fuel		1,003
Travel		5,121
Training		710
Supplies and Materials		31,975
GSA Rental		9,495
Equipment		5,867
Computer Equipment		11,000
Moving Expense		<u>10,000</u>
Total		\$281,173
ARRMS Projects	\$ 25,500	
Miscellaneous Habitat Improvement		\$ 3,570
Rice Lake Rehabilitation		10,597
New Lands Clean-up		3,185
Salaries		<u>7,460</u>
Total		\$24,812
Youth Conservation Corps Program	\$ 5,300	
Crew		\$3,245
Supplies		<u>1,988</u>
Total		\$5,233
Total Funds	\$315,900	\$311,218

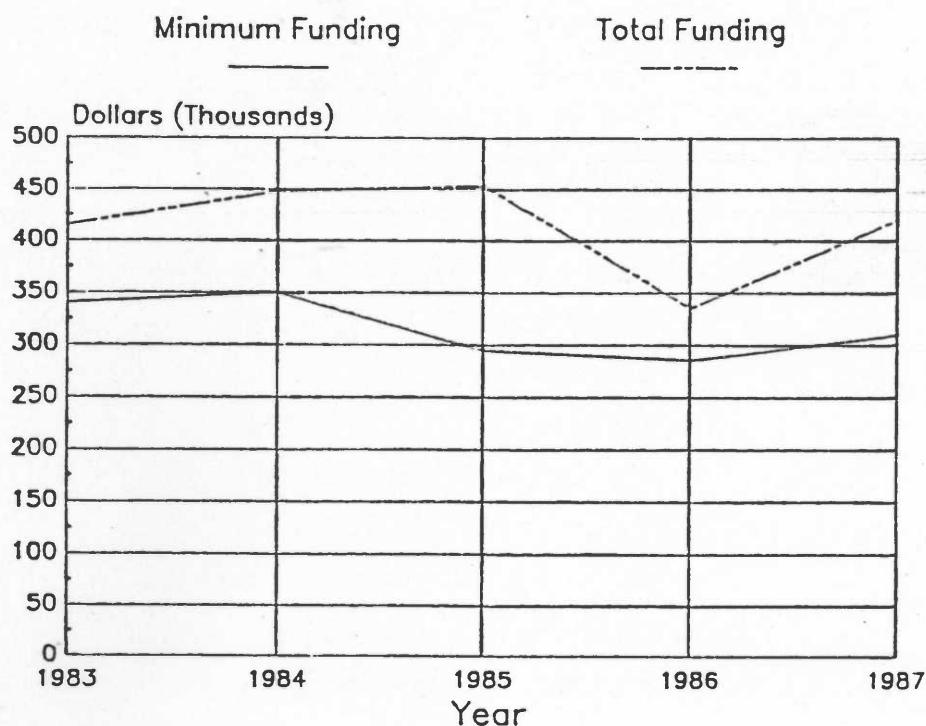


Figure E.1. Changes in Funding Status, 1983-1987.

6. Safety

Monthly safety meetings were held and attended by all the staff available.

January	Proper Fire Extinguisher Use and Equipment Shutoff
February	Safety Hazards in the Work Place
March	Track Vehicle Safety
April	Pro Driving Tactics
May	Job Hazard Analysis
June	Boating and Water Safety
July	Mental Attitudes Towards Safety
August	Emergency in the Making
September	Safety Check Your Car
October	Power Tool Safety
November	Clinical Rabies
December	Cold Can Kill

The safety committee met regularly and the following were the major areas dealt with during the year.

- 1) Material Safety Data Sheets were compiled and filed in shop and main file.
- 2) First aid and CPR certification provided and renewal regulations emphasized.

- 3) All necessary staff were certified for boat safety and all terrain vehicle operation.
- 4) Reviewed the safety plan and submitted to regional office.

There were two incidents reported to supervisors during 1987. Ed Moyer struck his right index finger with a hammer and suffered a small fracture. There was no lost time.

The body of a 26 year old man was found on the Black Dog Unit by a refuge visitor on June 25, 1987. Patrick J. Coffman of Burnsville, Minnesota, had been reported missing since June 9, 1987. Police reports indicated the death as a suicide.

7. Technical Assistance

A total of \$6,281 and 249 staff hours, was spent on various aspects of The Food Security Act during Fiscal Year 1987. Mary Mitchell, Biological Technician and Terry Schreiner, Primary Assistant Manager managed the program over a six county area. The following is a listing of time spent on the various aspects.

<u>Activity</u>	<u>Hours Spent</u>	<u>Dollars Expended</u>
Conservation Reserve Program (Signup)	45	125
Conservation Reserve Program General (includes training)	65	1,250
Conservation Compliance (State exemption committee)	40	900
Swamp Buster (includes 87 wetland determinations)	62	1,660
RIM	37	1,220

8. Other

- a. Training was kept at a minimum due to the amount of funds. The following is a list of employees and what training they had during 1987. Some of the training was at no cost to the refuge.

<u>Attendee</u>	<u>Course Title</u>
Edward S. Crozier	Law Enforcement Refresher Training Metro Survival Course
Terry Schreiner	Law Enforcement Refresher Training Metro Survival Course Agriculture Pesticide Applicator Workshop
John Schomaker	Public Use Workshop How to Supervise People Defensive Driving Course

William Botsford	Public Use Workshop
Ed Moyer	1987 National Interpreters Workshop Law Enforcement Refresher Training Metro Survival Course
Mary Mitchell	Metro Survival Course
Pam Tucker	Defensive Driving Course
Paul Irrthum	Agriculture Pesticide Application Workshop

b. Permits Issued

The following is a list of permits issued during 1987:

Permit Number	Permittee	Purpose	Amount	Period of Use
12516	Neal Ryan	Trap Nuisance Beaver	N/A	11/17/86- 04/30/87
12517	Paul Rice	Sharp Shooting Deer	N/A	01/01-03/31/87
12518	Charles Sutfin	Defining environment impact of major hwy on Savage Fen Wetland Complex	N/A	02/16-12/31/87
12519	John Gierke	Cut and remove dead trees	\$10	03/02-03/20/87
12520	Mike Stephens	Trap Nuisance Beaver	N/A	03/10-04/30/87
12521	Jim Hannay	Trap Nuisance Beaver	N/A	03/10-04/30/87
12522	Void			
12523	MMCD	Monitor mosquito populations	N/A	04/01-09/30/87
12524	Cindy Hughes	Conduct Environmental Study	N/A	04/15-12/31/87
12525	Robert Smith	Keep 18 Bluebird Houses on refuge	N/A	04/22/87- 04/22/88
12526	Brian Husby	Parking for Renaissance Festival	\$300	08/15-9/30/87

12527	Eden Prairie	Protecting Stanley tract		07/09-12/21/87
12528	Void			
12529	Jack Weyrauch	Trap Nuisance Beaver	N/A	10/07-10/31/87
12530	Terrence Lee	Trap Nuisance Beaver	N/A	11/25/87- 02/29/88
12531	William Ernst	Trap Nuisance Beaver	N/A	12/01/87- 02/29/88
12532	Eden Prairie	To allow city of Eden Prairie on Stanley property to assist in protection	N/A	01/01-07/01/88
12533	Kevin Ward	Trap Nuisance Beaver	N/A	12/30/78- 01/18/88

F. HABITAT MANAGEMENT

1. General

No flooding occurred from the Minnesota River during 1987. Flooding occurs on the refuge an average of one in every 2.2 years. The last year prior to 1987 that the river did not overflow its banks was 1981. This entire flood-free calendar year made habitat manipulation much easier and less rushed.

The cooperative farming operation was also successful as all acreage proposed was cropped this year with very high yields.

The prescribed burn program was a great success with a record 754 acres burned. All burns resulted in excellent control of target species and enhancement of desired species.

2. Wetlands

High water still remained a problem with several of the major refuge wetlands even though there wasn't any flooding in most areas. The lack of flooding helped the beaver population to expand rapidly. Their expertise in dam construction and water control structure plugging caused water level control problems on Long Meadow Lake, Fisher Lake, Rice Lake (Wilkie Unit), Chaska Lake, Carver Marsh, Orchard Springs Ponds, Black Dog marshes, Upper Louisville Marsh and Grass Lake. Several nuisance trapping permits were issued, (see section G.15.), but only alleviated the problem for short periods until dispersing individuals filled the void. The beaver created new wetlands on the east Wilkie Unit near Rice Lake by flooding 80 acres of wet meadow/forest creating a very productive Type III wetland. Another 60 acres of floodplain forest was flooded in the Long Meadow Lake Unit when beaver created a 200 yard low level dike.

A trapping program was implemented from December 1st, to the end of the season to help control many of the problem beaver. Hopefully, through the state trapping season and the off season nuisance control program, we can control beaver numbers to a point where we can conduct the water level management program without continually cleaning out structures and dams.

The Jobs Farm dike project in the Louisville Marsh was finished in late May. The facility is first class and, during most seasons, will help maintain a more stable water level within the 350 acre wetland basin. The dike was seeded down and a water level gauge installed during June. The basin was left dry to promote emergent and annual plants to grow. Two rainfall events put the feeder stream, Sand Creek, out of its banks which aided growth by maintaining adequate moisture.

The predominant plant species in the Louisville Marsh are river bulrush (43%), smartweed (19%), and beggarticks (14%). Once control structures were filled with boards and the slide gate closed in mid-September, the water was at maximum level within five days.



Beaver dams were found throughout the refuge causing management benefits as well as problems. MNV 8105



Management of water levels on Blue Lake created excellent habitat conditions for waterfowl. MNV 7830

Waterfowl use of the impoundment was light to moderate with Canada Geese notably prevalent throughout November.

Blue Lake water levels were maintained at the level dictated by a beaver dam constructed immediately upstream from the instream water control structure. The problem beaver were trapped and the dam was removed with a backhoe. The bays of the structure were fill with stoplogs on September 23. The water level reached the half full point when the feeder stream ceased flowing. The water is supplied to the feeder stream by pumping from an adjacent rock quarry. We assumed that the pumping was continuous but learned that in dry years the pumping is not needed through the fall.

The water level stayed the same until December 11th, when the level started rising and peaked at 16 inches below the spillway, a rise of seven inches from the previous level, reached when the feeder stream ceased flowing. No conclusive explanation has been reached as to why the water rose the final 8 inches, but it is believed that rain recharged the surrounding aquifer and numerous springs provided the water for the rise.

A good crop of wild rice occurred in the lake basin this year along with the following dominant species: 1) river bulrush (23%), 2) smartweed (23%), 3) softstem bulrush (15%), 4) wild rice (27%).

Waterfowl use was good to excellent even though much of the smartweed remained dry due to the lack of water.

Fisher Lake levels were not manipulated and emergents and submergent vegetation was fair to good. The levels were maintained artificially high due to another beaver dam below the outlet structure but had minimal effect on vegetative growth.

Waterfowl use was very high as is usually the case on this lake marsh. The interspersions of vegetation to open water is nearly 1:1 and the diversity of perennial emergent and submergents is very good.

A water control structure was placed in a dike/foot trail near the Old Cedar parking lot which backed water over one acre of wet meadow. The structure was provided and installed by the City of Bloomington and the pond is used as a holding pond for a storm sewer outlet.

The Rice Lake (Wilkie Unit) was maintained very high all season by a series of beaver dams on the outlet. There is no water control structure on this impoundment but wild rice covered a good portion of the center of the basin this year and waterfowl use was good.

Two unusual rainfall events occurred on the lower portion of the refuge on July 20th and 24th. On July 20th, 9-11 inches of rain fell in the southwest metro area in a few hours and large deposits of silt ended up in the Rice Lake (Upgrala Unit) basin from the Moon Valley sand pit. Four days later, July 24th, 11 inches of rain fell in six hours over the center of the metro area causing damage to the dike/road on Hogback Ridge Pond. Pond C, a stormwater holding pond

in the Bass Ponds area, rose about 20 feet, topping the levee which was built to withstand a 100 year rain event. The rainfall events came in the middle of a very dry summer period. The Minnesota River rose a few feet but didn't overflow its banks. The water came so fast on extremely dry ground that it seemed to disappear as quickly as it appeared. Relatively light erosion damage occurred over most of the refuge, except the Long Meadow Lake Unit, which had damage estimated at nearly \$230,000.

Overall, the refuge lake marshes produced good stands of food and cover this season. The shallow basin wetlands in the upper portion of the refuge dried up by mid-July, but lasted long enough to provide adequate breeding pair and brood habitat.

Equipment was purchased and plans made to begin a water quality monitoring program on the major refuge wetlands and water sources starting in 1988. Point and non-point contaminants and silt are and certainly will continue to threaten the productivity of the areas, but refuge staff are hoping to correct these problems by working with upstream watershed organizations.

Additional benthic sediment sampling by Stan Smith, Ecological Services Office, indicates that the pollutants found in the Pond C storm sewer pond are definitely getting into Long Meadow Lake. Detectable levels were found as far out as 200 yards from the outlet. Periodic sampling is planned to document future trends.

Preparations were made to conduct a comprehensive water level manipulation and monitoring program during the year. A marsh and water management plan was submitted to the regional office. All manipulated wetlands were surveyed and water level gauges installed.

More and more interest is being directed towards using the refuge wetland basins as storm sewer runoff holding ponds. In some instances the floodplain marshes are the only place to drain the runoff and in others it is the cheapest place. In any case, future wetland management planning should have alternatives available to local municipalities when their interests turn to runoff storage. The high rate of development around the valley certainly will spawn that interest.

3. Forests

The 1,242 acres of forest is largely hardwood floodplain type with a climax stage mixture of silver maple, elm, and ash species with cottonwood.

The refuge has several small acreages of oak savanna and hillside forest. No management is planned on the hillside forest, but the oak savanna is burned at three to five year intervals to maintain the grass understory.

The 10 acre green tree impoundment within the Long Meadow Lake Unit did not have water in it this year due to no flooding and the lack of an alternative watering system.

4. Croplands

Cooperative farming agreements were implemented on five refuge units: Long Meadow Lake Unit, Wilkie Unit, Upgrala Unit, Chaska Lake Unit, and Louisville Swamp Unit. The Wilkie Unit was a new addition to the cooperative farming program in 1987. A total of 400 acres is farmed or maintained as wildlife cover or food plots under the cooperative farming program.

No flooding from the Minnesota River occurred in 1987, providing the cooperators with a good crop yield that was harvestable. The drought caused some problems with sweet corn germination, however, all other crops provided a good harvest. Wildlife cover and food plots provided luxuriant growth and good seed head production.

Current rental rates for refuge acreages and planting costs were used as the basis for calculating the share breakdown. A brief summary of the cooperative farming agreements for the 1987 growing season is given below:

Long Meadow Lake Unit

Cooperator's Share: 17.6 acres/Refuge's Share: 11.5 acres

Mr. Pahl planted 4 acres of tomatoes, 4 acres of squash and 9.6 acres of sweet corn. The refuge's share consisted of a 1.5 acre food plot in corn and a 10 acre planting of Japanese millet. The millet was planted in a moist soil impoundment which was flooded in late August for migrating waterfowl.

Upgrala Unit

Cooperator's Share: 66.6 acres/Refuge's Share: 25 acres

Mr. Peterson's share of the crop consisted of 55 acres of sweet corn and 11.6 acres soybeans. Two plots of buckwheat totalling 25 acres were planted as a wildlife food.

Wilkie Unit

Cooperator's Share: 10 acres/Refuge's Share: 4 acres

Mr. Chadwick is the newest participant in the refuge's cooperative farming program and is working in farm fields that already existed on acreages just acquired near Rice Lake. He also planted 4 acres of buckwheat for a wildlife food plot as the refuge's share.

Chaska Lake Unit

Cooperator's Share: 55.4 acres/Refuge's Share: 23 acres

Mr. Lano planted all his share of the crop to soybeans. He also planted two plots of buckwheat totalling 16 acres for wildlife foods. Another 6.4 acre plot was planted in Japanese millet which was subsequently flooded by beaver activity, providing a good food plot for migrating waterfowl. The remaining 0.6 acres of the refuge's share consisted of soybeans left standing in the field.

Louisville Swamp Unit

Cooperator's Share: 158.9 acres/Refuge's Share: 27.7 acres

Mr. Fahrenkamp planted 101 acres of field corn, 30 acres of soybeans and 28.9 acres of oats seeded with alfalfa. As the refuge's share, Mr. Fahrenkamp planted 3 stands of buckwheat totalling 18.2 acres. The remaining 9.5 acres of the refuge's share was accomplished by leaving corn standing in swales and along ditches and tree lines.

5. Grasslands

The establishment of warm season native grasses on the refuge in areas subject to flooding met with very little success over the past five years. Prolonged flooding, water action, and competition from an abundant weed source has destroyed or severely curtailed native warm season grass growth. Therefore, the refuge has discontinued this program until a more suitable native grass seed source is found. The refuge is still attempting to locate a native seed source for cordgrass. Reed canary grass is being established on CRP lands in flood-prone areas by the Soil Conservation Service and we are also investigating the use of reed canary grass in the refuge floodplain.

Several upland sites on the refuge were planted to warm season native grasses this year. An eight acre area on the newly acquired Bituminous Tract on the Long Meadow Lake Unit was seeded to 6 pounds Big Bluestem, 4 pounds Indiangrass and 2 pounds Switchgrass. The site is a reclaimed gravel pit and the area was very sandy but 4-6 inches of topsoil was deposited by the City of Minneapolis to provide a seed bed. The grass was planted in May using a seed drill. Germination was good but a six week drought caused high mortality among the seedlings.

A one acre plot around the newly established Black Dog Trailhead in Black Dog Park was also seeded with the above mentioned seed mixture in mid-May. The area was also adversely affected by the drought and seedling mortality was very high.

Both areas will be mowed before June 15, 1988 to set back the cool season grasses. If no response from warm season native grasses is noted in 1988, both areas will be reseeded in 1989.

A 2 acre portion of the Savage Fen donated to the refuge in 1986 was seeded to Big Bluestem, Indiangrass, Switchgrass and Little Bluestem. Formerly a rubbish heap for old concrete, the area was filled in, graded and then seeded by Prairie Restoration, Inc. All work was financed by Fabcon Corp., the donating source. Since planting was done in mid-June, seedlings were not affected by the drought and an excellent stand of grasses had become established by the fall.

Four fields north of Blue and Fisher Lakes totalling fifty acres which were brushed in 1986 with the hydro-mower were disced, plowed and seeded to annual rye grass during late fall. These fields will be included in the cropland management plan for a minimum of four years beginning in 1988. Eventually the acreage will be rotated into a grass species that can withstand flooding, possibly prairie cordgrass.

6. Other Habitats

A portion of the Savage fen acquired in 1986 is being used as a research area by the U.S. Environmental Protection Agency. See section D.5 for the details.

7. Grazing

Nothing to Report

8. Haying

The cooperative farmer on the Louisville Swamp unit harvested 26 acres of wild hay from areas adjacent to the unit's southern agricultural fields. He was allowed to take as many hay cuttings as possible between July 1st and August 15th. The cooperative farmer reimbursed the refuge for the fair market value of wild hay by leaving a portion of the corn crop previously planted under his cooperative agreement.

A total of 1,920 bales was harvested and calculated to be equivalent to 9.6 acres of corn. The corn was left standing in pockets and strips along field edges and near wetlands and brushy cover.

9. Fire Management

A total of 754 acres out of a proposed 820 acres was prescribed burned from early April to late May. Burns were conducted in the Long Meadow Lake, Black Dog, Upgrala and Louisville Units.

The most satisfying burn was the Black Dog burn which involved 555 acres of diverse habitat, 275 acres of which had not been burned in 15-20 years. The fire planning was complex and involved coordination between two cities, the Nature Conservancy, and the Minnesota Department of Natural Resources. To complicate matters further, Interstate and State highways border the unit.

The only problem on the entire burn was a temporary 90 degree wind shift early in the burn that caused some hearts to miss a beat, but overall, all went well.

A burning ban was instituted by the Minnesota Department of Natural Resources in early April and lifted in early May. Extreme dry conditions prevailed through the period and actually reduced dramatically the acreage that could have been burned if the ban hadn't shortened the burn season.



The west end of the Black Dog Unit was burned setting back the brush at the north edge. MNV 7864

10. Pest Control

A total of 18 acres of purple loosestrife was sprayed. This exotic aggressive invader plant species is now found on four of the seven refuge units. Purple Loosestrife was found in Blue Lake this year; the first plants found within the Wilkie Unit. Infested areas were treated with Rodeo from back pack sprayers, on foot, and by boat.

The aerial spraying of a monotypic stand in Kidder Marsh on August 27, 1986, resulted in nearly 100% mortality of all vegetation. Unfortunately, the heavy rain in July of 1987 washed out a natural plug in the outlet of the marsh and lowered water levels

dramatically. The result was a dense growth of late season purple loosestrife seedlings which were killed by frost before they could go to seed.

The aerially sprayed area in Long Meadow Lake finally produced vegetation by late summer, most of it purple loosestrife, but the stand was less dense than before the treatment.

The control of Purple Loosestrife by non-selective herbicides is definitely not the panacea it was first thought to be. Competition from native emergent plants is needed to assist in control efforts. Therefore, a relatively benign selective aquatic herbicide is needed to hold off the spread until a biological control is found.

Future control attempts will be made with spot spraying with Rodeo. New outbreak areas will be the priority.

11. Water Rights

Nothing to Report

12. Wilderness and Special Areas

Nothing to Report

13. WPA Easement Monitoring

Nothing to Report

G. WILDLIFE

1. Wildlife Diveristy

The abundance and diversity of wildlife in 1987 was at an all time high since establishment of the refuge mainly due to lack of river flooding and the influx of beaver activity this year which inundated 350 acres of timber and brush. This type of habitat is scarce on the refuge except when the Minnesota River overflows its banks. Wildlife use, especially by waterfowl, of these new wetlands was very high and greatly exceeded numbers usually found using floodplain marshes.

The beaver have shown us how to improve wetland diversity on the refuge by controlling spring and seep flowages and minor tributaries that flow from the bluffs to the river.

Refuge water management resulted in favorable nesting conditions for two previously unrecorded birds; the eared grebe found in Blue Lake and the common moorhen which was found in Hogback Ridge Marsh.



Many waterbirds, such as this greater yellow-legs, used the improved habitat in the valley as a feeding, resting, and breeding area. MNV8186

2. Endangered and/or Threatened Species

A maintenance worker at the Kelly farm reported a pair of bald eagles initiating a nest on the south shore of Long Meadow Lake in February of 1986. He reportedly photographed the eagle pair at the nest.

- A pair of eagles was again sighted at the nest site and nest building activities were observed in December. The refuge staff began monitoring the nest site in early 1987. The birds dispersed from the nest site sometime between January 24th and February 10th. The following is a chronological list of nest site visits:

<u>Date</u>	<u>Sighting</u>
01/12/87	Eagle pair observed at nest site.
01/24/87	Eagles again sighted at nest site; dead deer left within 100 yards of nest site for eagles to feed on.
02/10/87	No eagle observed at nest site. Deer consumed.
02/18/87	Volunteer monitored nest site for 4.5 hours; no eagles sighted.
02/19/87	Again, volunteer monitored nest site for 5 hours; no eagles sighted.
02/21/87	Five hours spent monitoring the nest site; no eagles observed; monitoring terminated.

Other bald eagle sightings in 1987 were as follows:

<u>Date</u>	<u>Number Sited</u>	<u>Age</u>	<u>Unit</u>
01/03	1	immature	Black Dog Lake
01/04	1	immature	Black Dog Lake
01/07	1	adult	Black Dog Lake
01/20	1	adult	Black Dog Lake
01/27	2	adult/immature	Long Meadow Lake
02/04	2	adults	Black Dog Lake
02/08	1	adult	Upgrala
02/12	2	adults	Louisville Swamp
03/15	4	2 adults/ 2 immatures	Upgrala
03/21	2	adults	Upgrala
03/25	2	immatures	Upgrala
03/28	1	adult	Upgrala
04/06	1	adult	Upgrala
08/12	2	adult/immature	Louisville Swamp
10/15	1	adult	Long Meadow Lake
11/05	1	immature	Long Meadow Lake

3. Waterfowl

The lack of flooding in the valley created excellent habitat for nesting ducks. Production leaped from an average of 1,100 ducks to a high of 2,627 this season.

We were beginning to wonder if our low production estimates in recent years were an actuality instead of our inability to locate the pairs or broods. Now we know that breeding ducks will and do use the Valley, we just need to find an effective way to census the area.

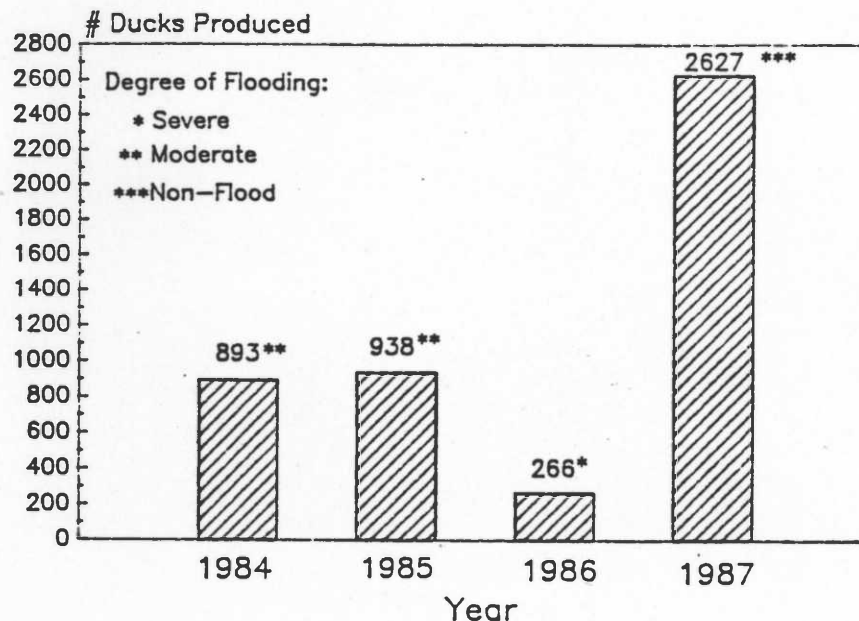


Figure G.1. Comparison of Waterfowl Production & Flooding Severity.

Migrating waterfowl use of the refuge was normal for the year except during the fall. The normal fall migration of major flights riding cold fronts through the area never occurred. Uniform numbers of waterfowl were censused throughout the period from late September to early November. The usual observance of Tundra Swans using the refuge lake marshes during early November never developed this year. Similar uniform non-peak type fall waterfowl flights were reported throughout the state of Minnesota during the fall migration.

Overall, the refuge wetlands produced an excellent density and diversity of cover and food during 1987. Waterfowl responded by using the areas for the entire season instead of just during the spring and fall which is usual during a flood year.

The following is a composite of monthly waterfowl surveys for the refuge.

Figure G.4.1.

1987 WATERFOUL INVENTORY
ESTIMATED PEAK POPULATIONS BY MONTH

MONTH	Coot	Hall	Can	Pint	Tsuan	BUT	Widge	GUT	Woodie	LScamp	Ruddy	CGold	BNeck	Gadwall	CGoos	Black	Shoveler	WMerg	Bfhead	TOTAL ALL Spec.	TOTAL Excl Coot
n		800													500				50	1350	1350
b		200																		200	200
r	17920	625			740	55	230		105	2025	10		800		500	25				23035	5115
r	10100	1000	20			365	75		455	970	20		135		305		40	35		13520	3420
y	2390	625				370			705	5	25		40		695		25			4880	2490
na		1155				100			675						290			10		2230	2230
ly		2990				135	5		940						260					4330	4330
h	255	4270				6060	290		1890						45					12810	12555
pt	34425	6570				6060	290		1890						720					49955	15510
t	34400	6570				850	170	90	690	75			1985	180	720					45730	11350
v	2150	3900		30			190	55	30	80			2180	200						8675	6465
c		550										165			385					1100	1100
TAL	101640	29255	20	30	740	13995	1250	145	7380	3155	55	165	5140	380	4420	25	55	45	50		



Canada geese in the metro area are at the nuisance level, but in the Bass Ponds Environmental Study Area it is difficult to complain about this one who pre-empted a duck nesting site.

MNV 7774

4. Marsh and Waterbirds

In 1987, both a winter nest survey and a summer nestling survey were conducted at the Blue Lake Heron Colony. During the winter survey, all trees were retagged with metal tree tags and their position noted on a 10,000 square foot scale grid cell map. This facilitated the use of a random sampling plan for the 1987 nestling survey.

The winter nest count yielded a total of 256 nesting trees supporting 599 nests. A random sampling plan of 20% of the 256 trees (or 51 trees) was set as the objective for the 1987 nestling survey. The actual sample included 46 trees representing a sampling of 18% of the nesting trees. Fifteen percent (15%) of the nests (90 to 599) were sampled.

Estimated production in the Blue Lake Heron Colony in the summer of 1987 is 514 great blue heron nestlings and 10 great egret nestlings. An increase in production of 60% was indicated by the 1987 survey results when compared with 1986 (524 nestlings in 1987 compared with 208 nestlings in 1986). A change in survey method, from working with a segment of the colony to a random sampling of trees throughout the colony, may be partially responsible for the difference in production over the two years. The 1988 surveys should give us some clues to the answer for this question.

A common moorhen established a nest in the Hogback Ridge marsh and produced four young. Moorhens have rarely been seen on the refuge and this is the first record of a confirmed nesting on the refuge.

5. Shorebirds, Gulls, Terns and Allied Species

- One of the refuge's birding volunteers sited an upland sandpiper in the prairie at Louisville Swamp the first of July. Although nesting has not been confirmed, we suspect the bird has established a nesting site. We will attempt to confirm this in 1988.

The week before Christmas was an exciting one for local bird watchers. Birders flocked to Black Dog Lake to observe such rare sightings as Thayer's, glaucous, Iceland and black-backed gulls and a harlequin duck. The occurrence of Thayer's and Iceland gulls in the State of Minnesota is considered an unconfirmed phenomena since identification of these birds is difficult without the bird in hand. Ornithologists from the University of Minnesota attempted to collect specimens for identification but were unsuccessful.

Black Dog Lake, an area known for its rare winter bird sightings, also produced several common loons over the Thanksgiving holiday.

6. Raptors

Red-tailed hawk populations appear to be remaining high with sightings very common on all refuge units throughout the year. An adult red-tailed hawk was seen perched on the nest established several years ago in an electric high-line tower at Black Dog Lake. However, the production of young was not observed.

Ospreys were sighted on the Black Dog Lake and Wilkie Units of the refuge.

7. Other Migratory Birds

Nine bird transects were run by volunteers in 1987, who observed 48% (66 of 137) of the songbirds known to use the refuge. Unusual songbird sightings are given in Table G.1.



The Audubon "hot-line" can gather a crowd quickly to see unusual birds at Black Dog Lake. MNV 8326



While not unusual in Minnesota the bufflehead duck is also appreciated by birdwatchers visiting the refuge. MNV 8197

<u>Species</u>	<u>Unit</u>	<u>Date</u>	<u>Status</u>
Pileated Woodpecker	Louisville Swamp	6/13	Uncommon Resident
Eastern Wood PeeWee	Louisville Swamp	7/11	Uncommon Summer Resident
Western Kingbird	Louisville Swamp	6/14	Not on refuge bird list
Winter Wren	Long Meadow Lake	6/24	Uncommon Migrant
Yellow-throated Vireo	Long Meadow Lake	6/14	Uncommon Summer Resident

Other Unusual Volunteer Sightings:

*Common Moorhen	Long Meadow Lake	6/14	Occasional Summer Resident
Semipalmated Plover	Louisville Swamp	5/9	Uncommon Migrant
Upland Sandpiper	Louisville Swamp	6/13	Uncommon Summer Resident
Barred Owl	Louisville Swamp	6/14	Uncommon Resident

Minnesota Ornithological Union Sightings:

Bell's Vireo	Black Dog Lake	6/17	Rare Summer Resident
Yellow-breasted Chat	Black Dog Lake	6/17	Uncommon Summer Resident

*nesting confirmed

Table G.1. Uncommon Bird Sightings Recorded on Refuge in 1987.



The bluebird man, Bob Smith, maintained 18 nesting boxes on the Louisville Unit for bluebirds. A total of 69 individuals fledged from 18 boxes during 1987. MNV 8180

8. Game Mammals

Since 1982, the refuge staff has been monitoring a rapidly increasing deer population within the Minnesota River Valley and surrounding communities. Deer populations were reaching such high numbers that severe browse damage to vegetation was occurring along with a very high incidence of car/deer collisions. Therefore, in 1984, the refuge along with the Minnesota Department of Natural Resources personnel initiated a deer reduction program. This effort began with a public hunt which has been expanded over the past three years and was supplemented with sharpshooting operations in early 1987.

A deer population modelling program developed by the Minnesota Department of Natural Resources was used to investigate the possible effects of different herd reduction goals. The reduction plan that was most reasonable in terms of annual deer removal numbers and impact on population through 1990 is given in Table G.2. By the year 1990, the number of deer targeted for removal would have decreased to only 89 deer. By 1990, the deer population for the Fort Snelling-Long Meadow Lake-Black Dog Lake area should have decreased

to 28 deer per square mile. At this time, however, we have no way of predicting how influx from surrounding areas will affect deer reduction efforts.

<u>25% REDUCTION EACH YEAR*</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Pre-Fawn Population	576	551	414	310	233
Number Fawns Produced	403	374	232	169	124
Post-Fawn Population	979	926	646	479	357
Pre-Hunt Population	911	858	596	441	328
Number Antlerless Permits	324	625	335	232	166
Total Harvest	225	283	171	122	89
Post-Hunt Population	641	488	368	276	207
Adult Male	165	181	151	116	88
Adult Female	201	121	88	65	48
Yearling Male	180	114	79	58	43
Yearling Female	95	73	50	37	28

*Preferred reduction program

Table G.2. Theoretical Deer Reduction Plan for 1987-1990.

The U.S. Fish and Wildlife Service and the Minnesota Department of Natural Resources have set an optimum deer population density for the Minnesota River valley of 15-25 deer per square mile. Table G.3. indicates that population densities prior to a 1987 hunt far exceeded the suggested optimum density. In the Fort Snelling-Long Meadow Lake-Black Dog Lake area alone, over 300 deer were targeted for removal to lower population levels to near 25 deer per square mile.

In 1987, the herd reduction program called for a 25% reduction in the post hunt population targeting 283 deer for removal.

Survey Area	1986 Winter Deer Population		Optimum		Surplus
	Survey Estimate Population	Density	Population	Density	
Fort Snelling	170	49	87	25	83
Long Meadow Lake	231	70	82	25	149
Black Dog Lake	175	109	40	25	135
TOTAL AREA	576	69	209	25 -	367

Table G.3. Calculation of 1986 Pre-Hunt Surplus Deer Population in the Fort Snelling-Long Meadow Lake-Black Dog Lake

A shotgun/archery hunt was conducted for two weekends (4 days) during November of 1986 which included units of the Fort Snelling State Park

and the Black Dog Unit of the refuge. A total of 100 deer were taken; 17 by bow and 83 by shotgun.

The 1986 hunt was followed by a sharpshooting program from January - March of 1987. State conservation and refuge officers took 125 deer with high powered rifles. These were taken without controversy in the evening over bait, during daylight drives, and spotlighting from cars.

The hunt and the sharpshooting program places emphasis on taking deer with the highest reproductive potential. Therefore, priority was placed on adult females and, secondarily, on fawns. The objective of the hunt and the need to take female deer was emphasized during a hunter orientation program and bonus antlerless deer permits were issued to further encourage the taking of females.

The 1987 hunt involved a two weekend (4 day) shotgun hunt and a 2 day muzzleloader hunt on the Fort Snelling State Park and the Black Dog Unit of the refuge; a total of 41 deer were taken, 35 from the park and 7 from the refuge. Seven deer were taken by muzzleloader, all from the park. Table G.4. below indicates the data from the Metro special hunts from 1984 through 1987.

	<u>Deer Harvested</u>			<u>Age/Sex Breakdown</u>				<u>Total</u>
	# Deer Possible	Refuge	Park	Adult				
				Male	Female	Male	Female	
1984	148	14	43	22	17	10	8	57
1985	176	5	47	8	25	9	10	52
1986	161	27	73	32	32	18	18	100
1987	180	7	31	14	11	10	3	38

Table G.4. Harvest Results for Metro Deer Hunts, 1984-1987.

The Louisville Swamp, Wilkie and Black Dog Units of the refuge were opened to bow hunting concurrent with state regulations. The state deer management units do not coincide with the refuge units, making the gathering of accurate data impossible. Several check stations were asked to inquire about the location of harvest and following numbers were verified: Wilkie 17, Black Dog 3, Louisville 9, and unknown 13 for a total of 42.

A total of 417 deer are known to have been removed from the refuge since 1984. It is estimated that a least another 100 animals have been taken through archery seasons and another 50 through poaching during this period for a grand total of 567 animals removed. The reduced kill during the 1987 gun hunt is presumed to be an indication of lower numbers as a result of past removals but may also be due to the disturbance of the bow hunt and the sharp shooting activities.

COST EFFECTIVENESS OF
1986 METRO HUNT AND SHARPSHOOTING OPERATION

	Refuge Wages	State Wages	Equipment Costs	Revenues	Total Costs
Metro Hunt	\$2,602	\$12,046	\$802	\$2,985	\$11,662
Sharp Shooting	\$3,472	\$11,955	\$1,041	\$1,000	\$15,468

Merto Hunt: \$116 per deer
Sharpshooting: \$123 per deer

Table G.5. Cost Comparison of Metro Hunt and Sharpshooting Operation.

Vegetation browse surveys were again conducted this year, but not completely finished. These surveys have been streamlined since 1986 and we still have difficulty in finding the staff time to complete the arduous, time-consuming task. Volunteers have been enlisted to help with these, but it is not the most popular job on the refuge.

Browse rates were measured in three deer exclosures again this year to add baseline data to that which was gathered in 1984 and 1985 for a master degree thesis. The thesis document is not finished but the raw data definitely shows high mortality and browse rates over time, especially the 1986 and 1987 data. Hopefully, we can get the final report and subsequent data organized to be included in presentations to the local communities each year and in a Metro Deer Management Plan that is being drafted by the Department of Natural Resources.

Overall, we are pleased with the way the whole deer management program in the metropolitan area is progressing. The local communities now realize that the refuge and the state cannot solve the deer over-population problem alone and that they must be an active participant in a cooperative effort. The Minnesota Department of Natural Resources has assumed the role of lead agency, as we have recommended for some time, and the refuge is always actively involved but in a cooperative participant role.

A paper written and presented by Mary Mitchell at the 49th Annual Midwest Wildlife Conference further details the refuge's deer management program approach.

9. Marine Mammals

Nothing to Report

10. Other Resident Wildlife

The predator survey routes on the Long Meadow Lake, Upgrala and Louisville Swamp units of the refuge were conducted for the fourth consecutive year. The Upgrala survey route was conducted outside the official survey period of August 31 through September 18 (conducted on September 25) because of inclement weather.

The methods for site preparation and predator station placement were the same as those used in previous years. The results of the 1987 predator survey are presented in Figure G.2.

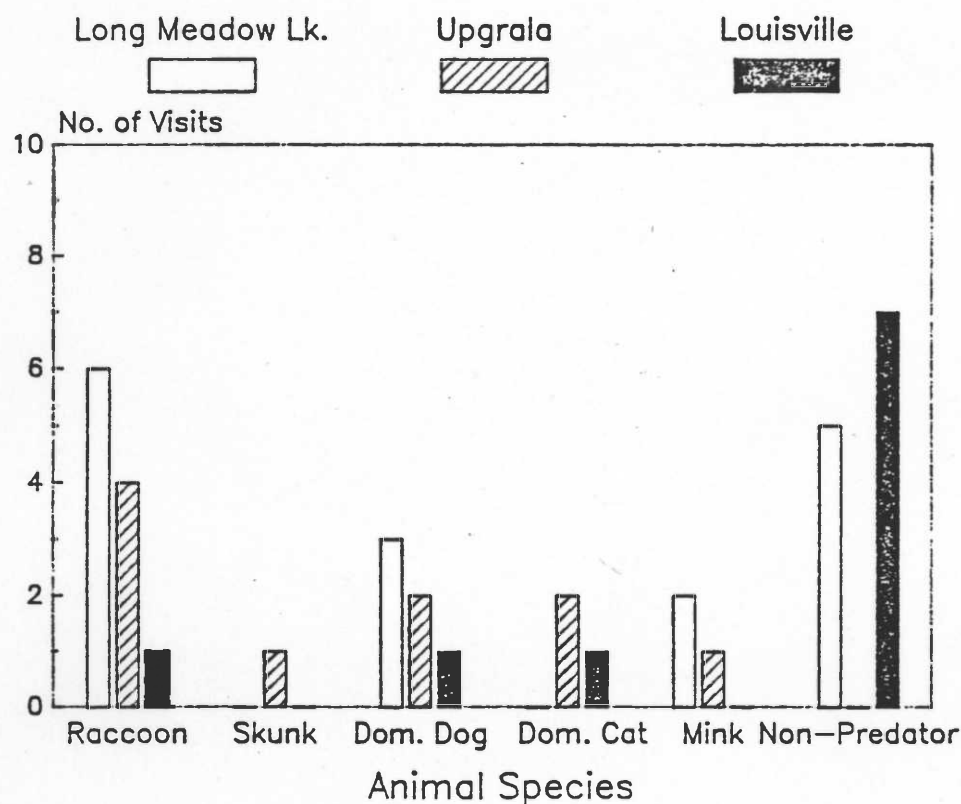


Figure G.2. Number of Visits to 1987 Scent Stations by Species.

A total of 37 visits were made to 29 stations (one station was inoperable). Twenty-four of 29 operable stations (83%) were visited. Twenty-four of the 37 visits were made by predator species.

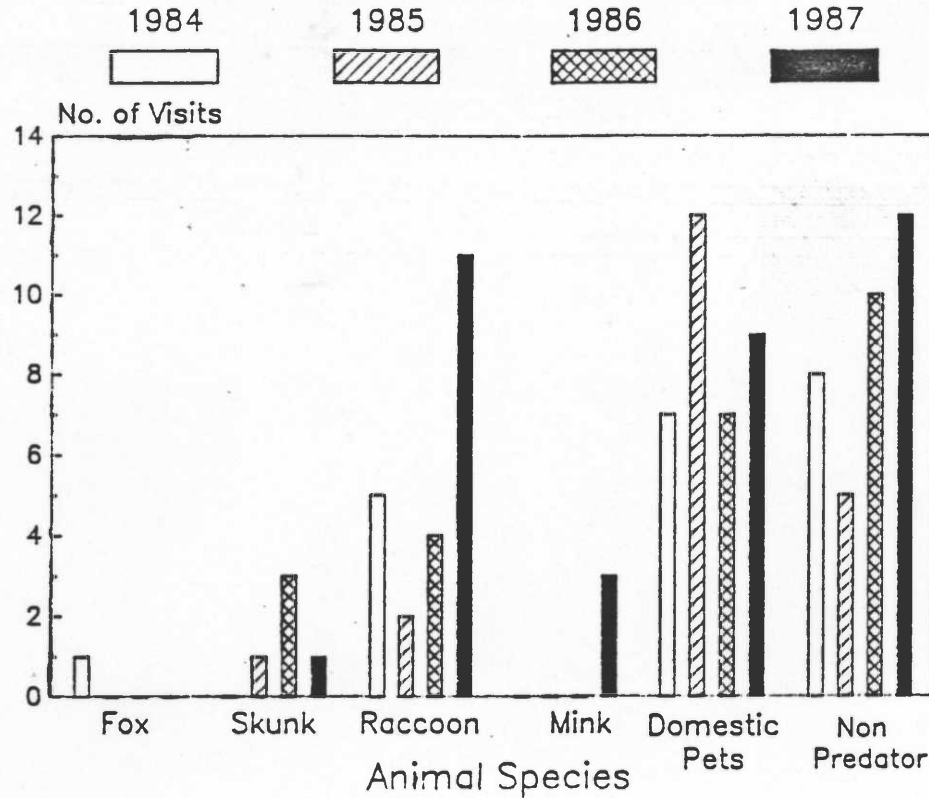


Figure G.3. Number of Visits Made During Survey Years 1984-1987.

As can be seen in Figure G.3., visits by raccoon were twice as high as they have been in previous years. The absence of any significant flooding this year is probably the major factor influencing a rise in raccoon numbers.

A coyote was sited on the Wilkie unit by a trapper. Coyotes are rarely seen on the refuge and have only been reported from the Louisville Swamp unit. They have not visited any of the predator survey scent stations.

11. Fisheries

Nothing to Report

12. Wildlife Propagation and Stocking

Nothing to Report

13. Surplus Animal Disposal

Nothing to Report

14. Scientific Collections

Nothing to Report

15. Animal Damage Control

Beaver have become a serious nuisance problem on the refuge over the past several years. They have caused water damage to roads and trails and made water management difficult or impossible on some marshes. Not to berate the beaver unfairly, it should be noted they have also accomplished many admirable engineering feats, building complexes of water impoundments throughout the river valley.

However, where beaver have proved to be a problem, the refuge has needed to reduce populations. This was done using trapping permits during the regular trapping season and special use permits outside the season.

Special use permits were issued to 3 trappers in spring of 1987 to remove nuisance beaver from designated areas on the Black Dog Lake, Wilkie, Upgrala and Chaska Lake units. A total of 5 beaver were removed from Wilkie and 4 from Black Dog Lake. A special use permit was also issued to an individual for the month of October, just prior to the opening of the regular trapping season. He was able to take 7 beaver on the Louisville Swamp Unit, 7 on the Wilkie Unit and 3 from Black Dog Lake Unit.

Trapping permits were issued to 5 trappers, with emphasis placed on the taking of beaver, for the regular trapping season. As of the end of 1987, only 5 beaver had been taken by these five trappers. The opportunity to take mink, muskrat, and raccoon as well as beaver may have resulted in the poor results.

16. Marking and Banding

Wood Duck Banding Program

A rocket netting site was cleared, graded and gravelled on the southeast shore of Blue Lake, in the Wilkie Unit, in the fall of 1986. This site was the only banding site used during the 1987 banding season.

Four (4) netting efforts were attempted during the 1987 wood duck banding program. The first attempt was unsuccessful, with the three following yielding 30, 89 and 81 wood ducks, respectively. Only two mallards were caught during the banding program even though, initially, a significant portion of the ducks around the banding site were mallards.

A total of 183 ducks were captured during the 1987 banding season; 179 were banded, two were previously banded by the refuge in 1986 and two mallards were released unbanded. The sex and age breakdown of the wood ducks banded is given in Figure G.4. The 100 duck quota was exceeded, however, the 25 duck quota for adult females was not reached.

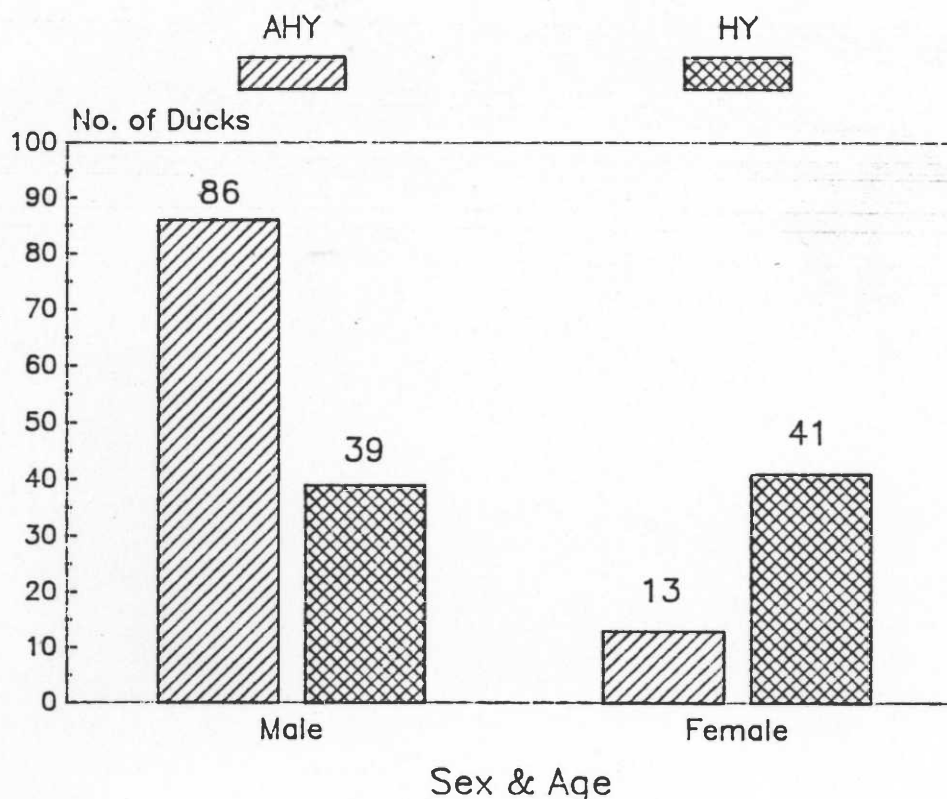


Figure G.4. Age/Sex Breakdown of Wood Ducks Banded in 1987.

Expenditures for the 1987 banding program consisted of staff hours and purchase of bait. The 1987 cost per duck was \$11.88 compared to \$16.60 in 1986 and \$4.15 in 1985.

An estimate of the Blue Lake population was calculated from the 1987 banding results using two methods: the single mark-recapture method and the triple catch method for estimating populations. The results were:

	Population	Variance
Single Catch Method (1st & 2nd catch)	540	214
(2nd & 3rd catch)	438	105
Triple Catch Method	584	397

The average population estimate for Blue Lake calculated from these methods is 521 wood ducks.

Deer Tagging Program

Forty-nine percent (37 deer) of the 75 deer tagged during the 1983-85 deer tagging program have not been reported dead. Figure G.5 shows the cause of death for the 38 deer reported dead.

A tagged 12 point, 200+ pound buck was reported killed near Annandale, 50 miles northwest of the headquarters. The buck was tagged in 1984. Only one tagged deer was reported by an observer in 1987, compared to 9 deer reported in 1986, 25 in 1985, 46 in 1984, and 13 in 1983. Nine of the 75 deer trapped during the 3 year program have not been sighted since they were tagged.

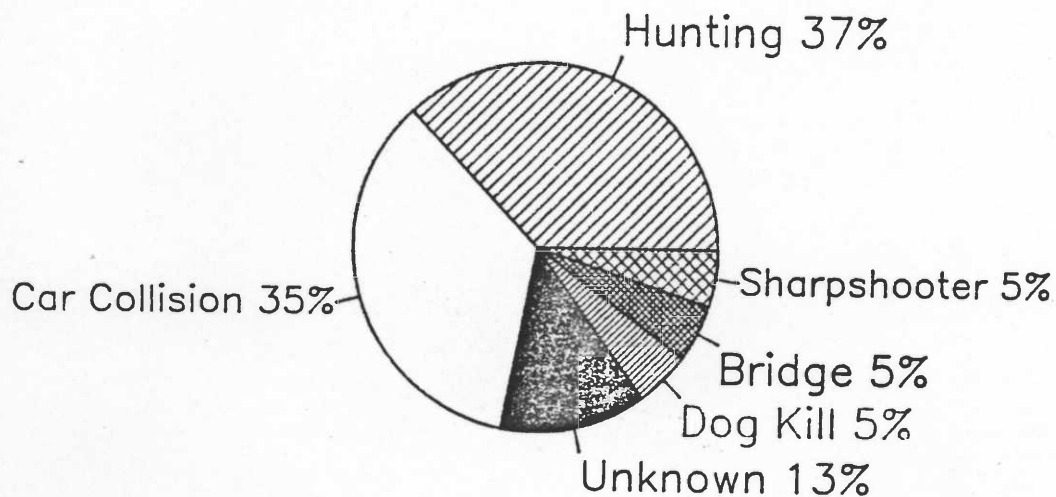


Figure G.5. Cause of Death for Tagged Deer Reported Dead.

17. Disease Prevention and Control

A disease prevention and control plan was drafted and approved during the year.

H. PUBLIC USE

1. General

The year ended on a high note with news that Congress had appropriated the final \$2.68 million for the Wildlife Interpretive Center. Refuge staff celebrated the idea of the Center being transformed from dream to reality. As the year closed, the building plans were 95 percent complete and needed only final details included before bids could be sought. Hopefully, ground breaking will begin in June or July of 1988.

The exhibit plans, in the meantime, have advanced through 50 percent design development. After some uneasy and uncertain periods working with The Burdick Group from San Francisco, the exhibits have begun to gel. With The Burdick Group hiring a Minnesota ecological expert, the exhibit sequence now flows smoothly and conveys the message of people as an active agent in the environment and the role of the refuge in wildlife management based on the principles of diversity and succession. The exhibits will include several participatory exhibits, including computers, and a large marsh aquarium.

The interpretive center will be a welcome addition to the refuge. More and more people are walking to the headquarters from the hotels asking, "What is there to do?" We currently direct them to the self-guided interpretive trail at the Bass Ponds - a two mile drive from headquarters. The Center is sure to attract many more visitors.



South and West views of the New Wildlife Interpretive Center. MNV8219



The old Jabs Farm buildings on the Louisville Unit
were used as the foundation of the new
Interpretive Center architectural theme. MNV8081

Trailhead facilities were upgraded this year. The Black Dog Trailhead was completed and initial grading for the Wilkie Unit Trailhead was done. The trailheads provide simple information kiosks and a place to park. Due partially to better facilities, but primarily, we think, to word-of-mouth advertising, use on the refuge has grown substantially. Visits to the refuge increased from about 45,000 in 1986 to almost 70,000 in 1987 (See figure H.1)

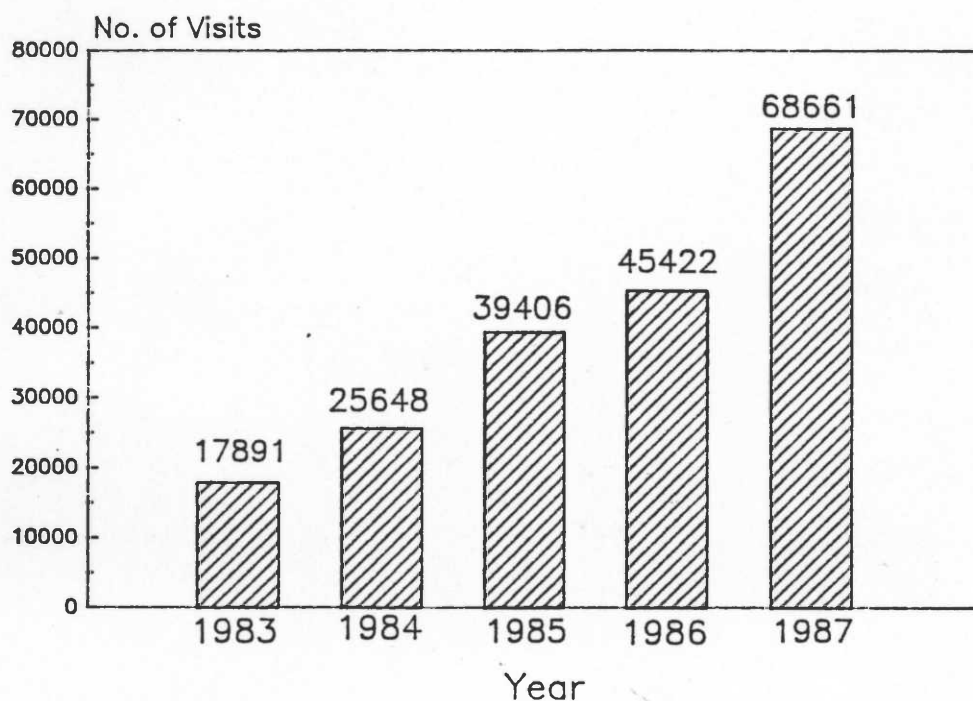


Figure H.1. Number of Visits to the Refuge, 1983-1987.

Our contact with the public this year included newsletters, television, newspapers, and luncheons. The refuge newsletter, Update, was sent out twice to persons on our mailing list. The refuge was featured on four Minneapolis television reports.

<u>Date</u>	<u>Topic</u>	<u>Channel</u>
6/11	Kid's Fishing Day	5 (ABC)
6/11	Kid's Fishing Day	11 (NBC)
9/8	Vandalism on Refuge	9
12/17	Funding Approval for Visitor Center	9

The refuge was either mentioned or featured in over 20 local newspaper articles. Some of these articles were stimulated by 8 news releases that we issued.

<u>Topic</u>	<u>Month</u>
Refuge Outdoor Classroom Workshop	February
Project Wild at Minnesota Valley	February
Summer Employment Opportunities	March
Bluebird Tour and Film	April
- Tour at Black Dog Prairie	July
- Permits Available for Valley Deer Hnt	September
Fur Trapping Announced for the Minnesota Valley National Wildlife Refuge	October
Two Special Cross-Country Ski Tours Minnesota Valley National Wildlife Refuge	December

Two particularly successful activities were luncheons held at the refuge - one for local Chamber of Commerce presidents in March and one for general managers of neighboring hotels. The Friends of the Minnesota Valley paid for catering for both and the "Take Pride" theme was stressed in the Chamber of Commerce meeting. The refuge programs and plans were the subject of the hotel meeting. The hotel managers were enthusiastic about future cooperation. Two managers offered to donate catering. And, they were anxious to promote use of the refuge by distributing information about the refuge to their guests. They were particularly interested in jogging and cross-country skiing information. The Hilton representative offered, and we accepted, the opportunity for one of our employees to attend their hospitality course that stresses customer satisfaction.

2. Outdoor Classrooms - Students

During 1987, 96 students participated in 258 hours of Outdoor Classroom and environmental education on the refuge. Of those students 84 were of the High School age and 12 were in college. Six-hundred three students K-12 participated in 663 hours of environmental education programs at their school. The programs varied from native prairie restoration to endangered species and were in response to requests from teachers.

With the addition of a staff member tasked specifically with environmental education, an increase in the on-site outdoor classroom and environmental education is expected in 1988. The Bass Ponds and other sites are also expected to become more utilized by all schools along the 34 miles of the Minnesota River adjacent to the refuge. An increase in teacher workshops offered by the refuge is also expected.

3. Outdoor Classroom - Teachers

There were five teacher workshops held on the refuge and four other workshops held off-refuge. Ninety-nine teachers participated in 300 hours of workshop on the refuge and 104 teachers participated in 609 hours of workshop off-site. Most requests from the 203+ teachers were for Project Wild workshops and additional information from other curriculums.

With the addition of another staff member having the emphasis of environmental education, the teacher workshop numbers are also expected to grow. A need for teacher workshops has been identified after a review of nature centers in the metro area. This need has started to be met. When the visitor center comes on line and better facilities become available, more workshops will be completed. Currently the refuge office can hold workshops with only 25 teachers. With the new visitor center, workshops with 50 or more teachers will be possible.

Part of the need for workshops has come about because of the state law which requires teachers to teach environmental education in the classroom. The rush to qualify K-7 teachers is directly related to this law. Some school districts contract out environmental education to the 32 nature centers in the metro area, thereby meeting the letter of the state law. Training teachers and providing sites is, however, the intent of the law. The refuge will play a larger role for area teachers by providing workshops and sites for education.

4. Interpretive Foot Trails

Minnesota Valley's two interpretive trails receive distinctly seasonal use. In a normal winter, when there is enough snow, about 10 percent of the people who ski to the Jabs Farm warming hut in the Lousiville Swamp learn a bit more of human history and refuge management from six 12" x 20" photo-metal signs around an 1880's stone barn. Quotations from a member of the Jabs family, and from a Dakota Indian whose band lived in the area before them, help to develop an interpretive storyline that explores human relationships with the land around the farmstead.

The "Caretaker's Walk" is our summer trail. Located at the Bass Ponds Environmental Study Area and now in its third year, it interprets early fish rearing efforts by the Izaak Walton League and presents, refuge wetland management. Three thousand people are estimated to have used the Caretaker's Walk as an interpretive trail in 1987.

5. Interpretive Tour Routes

Nothing to Report

6. Interpretive Exhibits/Demonstrations

Lacking a visitor center, information kiosks are the primary interpretive exhibits at Minnesota Valley. At the end of this year we had two 3-panel and six 2-panel kiosks at various trailheads throughout the refuge. One has been vandalized repeatedly and will be moved to a different unit of the refuge next year.

The refuge's "System 70" was used as a free-standing exhibit in July at the Izaak Walton League's Annual Convention and in September at the Regional Office with the new Purple Loosestrife panels.



The summer crew put the "finishing touch" to the Black Dog Park trailhead this summer. MNV 7930



The completed Black Dog Park trailhead is a fine example of a joint venture between the city, Northern States Power Company and the refuge. MNV 7990

7. Other Interpretive Programs

1987 was another busy year at the refuge. Some highlights:

February - A special tour of the Bass Ponds Environmental Study Area, Old Cedar Avenue, and the Black Dog Preserve was given for the University of Minnesota Geographer's Club. Two wildlife films were shown to refuge volunteers and a Refuge Update slide presentation was given to the Metro Chapter of The Minnesota Waterfowl Association.

March - National Wildlife Week provided a highly visible and intense four and one-half days for the Outdoor Recreation Planner. Ed Moyer gave 18, 40 minute presentations in eight schools to 3850 students, and a Refuge Update slide presentation was given to the N.E. Kiwanis Club.

April - Manager Ed Crozier gave a Refuge Update slide presentation to the Shakopee Chamber of Commerce at their monthly meeting. Sixteen 4th grade Girl Scouts were given a special tour of the Bass Ponds.

May - Refuge staff provided impromptu interpretation of our prescribed burning program for about 50 people who were attracted by a successful burn of The Black Dog Preserve on May 5th. Thousands more observed the smoke and fire from more distant points.

Carroll Henderson, Department of Natural Resources Non-Game Supervisor was a guest speaker at our Volunteer Appreciation Dinner May 8th and discussed his new book: Landscaping for Wildlife.

Bob Smith hosted a Bluebird Trail interpretive day and tour at Louisville Swamp for 67 people, the largest number of visitors this event has ever attracted.

The refuge provided a staffed booth at the first annual "Celebrate Jordan Festival".



Fisher folks with the simple poles caught the most. MNV 7904

June - Refuge staff and the Fish and Wildlife Service Outdoor's Club sponsored two Kids Fishing Clinics at the Bass Ponds. Clean fish were stocked by the Department of Natural Resources. Forty-five youngsters attended on June 6th, 90 on June 11th. The second day became a highly visible affair after two local television stations broadcast short features of it on their evening news.

The Outdoor Recreation Planner Moyer gave interpretive talks to members of the Wildlife Heritage Foundation, 20 people attending the Midwest Regional Bluebird Conference, and to a special tour of the Black Dog Preserve for 35 teachers attending a Northern States Power Company teacher's workshop. Northern States Power highlights its partnership with the refuge to stress its commitment toward a healthy environment.

July - Outdoor Recreation Planners Moyer and Tex Hawkins staffed an information booth at the 65th Annual Convention of the Izaak Walton League at the Radisson Hotel in St. Paul, Minnesota. Bob Smith gave another Bluebird Trail walk for 12 people in the Louisville Swamp.

August - Presentations to the Bloomington Rotary Club and a Black Dog Preserve prairie tour were this month's interpretive highlights.

September - Moyer gave two Black Dog Preserve prairie tours: to a Burnsville city government employee's club and to some members of The American Forest Council who were attending a conference in Bloomington. The first tour was reported in an article that appeared in the Minneapolis Star and Tribune and it stimulated the highest visitation the area has yet seen.

Outdoor Recreation Planner, Botsford, provided general refuge orientation and Moyer gave a modified Refuge Update slide presentation to 36 Kennedy High School students enrolled in an environmental studies class.

October - On October 1st, Outdoor Recreation Planners Moyer and Botsford were out on the refuge with 28 of Larry Thomford's Environmental Studies students. Botsford also spoke to an advanced biology class at Henry Sibley High School, 560 Jordan Elementary students, and a group of 12 from Northwood College who simply dropped by the refuge. Moyer gave Refuge Updates to The Apple Valley Rotary Club and a group of 15 St. Olaf College biology students.

November - Outdoor Recreation Planner Moyer gave a prairie restoration management talk to 26 Prior Lake High School students who, with their teacher Andrew Franklin, plan to restore a prairie near a \$10 million school expansion project. He later wrote a letter to the Prior Lake School Board urging favorable consideration of the students' restoration proposal.

December - Moyer was guest speaker at the Bloomington Park and Recreation Commission Annual Dinner where he gave a modified Refuge Update that stressed cooperative management in the Minnesota Valley.

8. Hunting

a. White-tailed Deer - Archery

In conjunction with Fort Snelling State Park, three units of the refuge were open for bowhunting this year. The Wilkie and Louisville Swamp/Carver Rapids Units were open from September 19 - December 31. The Black Dog Unit was open from September 19 - November 6, November 28 - December 10, and December 14 - 31. The Black Dog Unit was closed intermittently while shotgun and muzzle loader hunting was in progress. Permits were issued to 3824 hunters who were required to pick up their permits in person either from the refuge office or three state offices. Last year only the Louisville Swamp/Carver Rapids Unit was open and 2000 permits were issued.

In September, 280 hunters attended a voluntary orientation meeting held at Historic Fort Snelling. The meeting was coordinated by Outdoor Recreation Planner Moyer and included presentations by Moyer, a State Park representative, a conservation officer, and a Department of Natural Resources hunter safety and ethics instructor.

Just prior to the hunt a notice was sent to all Burnsville city residents who live near the Black Dog Unit notifying them of the hunt and urging them not to feed deer.

The hunt was conducted safely. Our best estimate of the number of deer taken on refuge units is 42. The number may be higher. It is not possible to know exactly, because of the check station procedures used by the Department of Natural Resources.

Three special permits were issued to disabled hunters for the Louisville Swamp/Carver Rapids Unit. To qualify for one of these special permits the applicant had to meet the requirements for the state handicapped parking certificate. Special permit holders were allowed to use an all terrain vehicle along and within 100 yards of the designated snowmobile corridors within the unit.

b. White-tailed Deer - Shotgun and Muzzleloader

In a continuing effort to reduce the size of the metropolitan deer herd in the Valley, the refuge and Fort Snelling State Park held a shotgun hunt during two weekends in November - 7,8,14, and 15 and a muzzleloader hunt during a long weekend in December - 11,12, and 13. Only the Black Dog Unit of the refuge was open for these hunts. Permits for each hunt were limited to 100, and the successful applicants were required to attend an orientation session in which hunting safety was stressed. All of the shotgun permits were issued, but only 13 people applied for muzzleloading permits. Approximately 20 shotgun hunters were on the Black Dog Unit each weekend. Three muzzleloaders hunted the Unit.

During the shotgun hunt only seven deer were taken on the refuge, and no refuge deer were taken with muzzleloaders. This year's harvest was down considerably from last year's 27 deer. We are not sure why so few deer were taken. It may be that the presence of bowhunters early in the season pushed the deer out of the area before the shotgun hunt.

There was no organized opposition to the 1987 deer hunt. The only public opposition came in a brief statement made by an animal rights activist before the Burnsville City Council when they considered and passed an ordinance that permitted the refuge hunt.

c. Waterfowl Hunting

The Young Waterfowler's Program continued to be the only authorized waterfowl hunting on the refuge. Volunteers with the Minnesota Waterfowl Association have primary responsibility for training the youth in this program. This year 15 young people, several without fathers or with non-hunting fathers, participated in the program. Both classroom and practical instruction was given before the young hunters ventured into the field with an instructor-guide.

The program was popular with both youth and guides as the area for hunting on the refuge was Long Meadow Lake. The only other hunting on the Lake is by members of the exclusive Long Meadow Lake Gun Club. Each participant in the program was taken hunting at least twice during the season.

9. Fishing

Bank fishing is permitted in all refuge waters, but we do not encourage it because the state health department still warns of PCB contamination. The most popular fishing is for northern pike in the

Hogback Ridge Pond and Long Meadow Lake near the Bass Ponds
Environmental Study Area.

10. Trapping

Beaver were a serious nuisance this year - blocking water control structures and constructing dams in areas that were not called for in our management plans. The Department of Natural Resources was reluctant to issue nuisance trapping permits when we have not allowed general trapping on the refuge. In an attempt to control the beaver and satisfy the Department of Natural Resources, we randomly selected four trappers from a pool of ten who had applied in response to a news release on the trapping program. The trapping will continue until February 29, 1988. The trappers were required to attend an orientation meeting. Through the end of 1987 the trappers had taken seven beaver, 225 muskrats, and four mink.

11. Wildlife Observation

Wildlife and nature observation continue to be a significant use of the refuge year round. The Black Dog Unit is often featured on the Audubon "hot-line" as the place to see unusual species. The trail through the prairie in the Black Dog Unit received heavy use, particularly after it was featured in a major article in the Minneapolis Star and Tribune. And, it is common to see birders with binoculars at the Bass Ponds.

The Long Meadow Lake, Black Dog Lake, and Louisville Units all have regular hiking use. And, if wildlife observation is not the primary motivation for these trips, it certainly is a major component of the visitors' experiences.

12. Other Wildlife Oriented Recreation

Nothing to Report

13. Camping

Nothing to Report

14. Picnicking

Nothing to Report

15. Off-Road Vehicling

Off-road vehicle use by the public is not permitted on the refuge with the exception of snowmobile use on the state corridor-trail, which runs through the Louisville Swamp Unit. We did allow minimal all terrain vehicle use by disabled deer bowhunters. There has been no significant impact upon wildlife, habitat, or other visitors' experiences but we suspect some disturbance along trails. There is also some trespass problems associated with this use.

16. Other Non-Wildlife Oriented Recreation

Because our headquarters and Bass Ponds area are close to major hotels, corporate buildings, and residential areas, jogging is a popular activity on and near the refuge from early morning, through the lunch hour, and into late evening. In response to requests from joggers stopping at headquarters and the general managers at neighboring hotels, we are planning to develop a simple brochure that will show appropriate places to run on and near the refuge.

17. Law Enforcement

There was an increase in hunter violations on the refuge due in part to our attracting many more hunters to the refuge for deer hunting, creating better habitat which, in turn, attracted more waterfowl, and new lands were also added to the refuge.

Three refuge staff have collateral enforcement duties but a full-time enforcement officer is needed to be more effective in protecting the refuge.

Seventeen verbal warnings were issued for minor infractions including dogs off leash, collecting vegetation, and boating. Refuge staff issued citations to 10 individuals; 8 refuge trespass, 1 unplugged shotgun, 1 dog off leash.

Mike Hammer, Conservation Officer with the Minnesota Department of Natural Resources, gave 15 vehicle trespass warnings at Old Cedar Avenue and recovered a stolen vehicle for the City of Bloomington. He wrote six written warnings for uncased bows and 17 citations on the refuge: Litter - 3, Vehicle trespass - 3, No fishing license - 6, Angling with extra lines - 2, Possession of lead shot - 1, and unplugged shotguns - 2. He, Scott Carlson, and Ross Upsala do a good job patrolling lands adjacent to the refuge and they apprehended several people violating game laws near refuge lands.

There were 12 false alarms at refuge headquarters in 1987. The refuge headquarters was also burglarized twice during the year. In February, the phone lines were cut in three places and the alarm box was smashed for insurance. The desks were rifled and numerous law-enforcement items were taken: one revolver, four binoculars, two flashlights, and one red light from the Ford Ranger plus the credit card and keys. A pocket calculator was also taken (to calculate the amount of the ripoff?) We did: \$828.18

In March, we presume the same individual(s) returned for the rest of our law enforcement equipment. Again, the alarm was cut (only once this time), and four General Electric portable radios were taken. Total value: \$5121.60 Strangely, the radio chargers were left behind.

In June, a refuge birder discovered the body of a 26 year old man on the Black Dog Preserve 4 - 5 days after he shot himself in the chest

with a 12 gauge shotgun. The dead man had a history of mental problems and was reported missing by his parents. This incident was handled by the Burnsville Police Department.

The Stanley House at the Upgrala Unit was vandalized in July. Virtually every window and everything else made of glass in the home had been shot with an air rifle or a .22 caliber rifle. With the exception of this incident, there were only about a dozen isolated cases of petty vandalism on the refuge in 1987. Signs and kiosks are the favored targets.

18. Cooperating Associations

Nothing to Report

19. Concessions

Nothing to Report



The railroad pedestrian crossing into the Black Dog Unit,
donated by Northern States Power Company was
completed in 1987. MNV 8090



The Sand Creek state corridor trail bridge, built by
the Service, was also completed in 1987. MNV 7781

I. EQUIPMENT AND FACILITIES

1. New Construction

The much delayed Jabs Dike project, involving the rehabilitation of 1,400 linear feet of dike and the construction of a water control structure was completed during May. The project financed by Ducks Unlimited, provides reliable water level control for 350 acres of wetland. The objective is to enhance waterfowl nesting and brooding in the area. Comprehensive breeding pair and brood surveys will be conducted beginning in 1988 to document and evaluate waterfowl use.

The also much delayed, Sand Creek Trail Bridge project was completed during the year. A 60 foot long, 10 feet wide pre-fabricated corten steel bridge was installed on pilings to allow a safe all season creek crossing for staff and visitors using the state corridor trail.

The Jabs Dike and the North Sand Creek projects were inspected by the refuge staff.

The main focus was on boundary posting during the summer work season and all temporary personnel and Youth Conservation Corps workers expended the majority of their time on accomplishing the project. Nearly 24 miles of refuge boundary was posted and other public information signs were installed. The posting was done in a relatively short period, pleasantly surprising management. Numerous other small jobs that were not planned were accomplished with the "extra" days. The large amount of quality work accomplished during the summer season was mainly due to the extraordinary talents of two Biological Aides, Tom Roster and Jeff Schultenover, who acted as crew leaders on major projects. We hope that they will be interested in helping again in the future.



The Jabs Farm dike and control structure are the first major wildlife improvement projects built on the refuge. Built by Ducks Unlimited they will provide better access and allow improvement in the bulrush choked Louisville Swamp. MNV 7884 and 8047

Many additional smaller construction projects were completed by staff, Youth Conservation Corps and the Twin Cities Tree Trust. The following is a compilation of the projects by unit.

Long Meadow Lake Unit

- (1) One hundred feet of post and rail fencing added to newly acquired Lodoen property adjacent to the Old Cedar Avenue Bridge.
- (2) Water level gauges added to structures on Little Bass Pond, Big Bass Pond and Hogback Ridge Marsh.

Black Dog Lake Unit

- (1) A two-panel flat kiosk was constructed near the Black Dog Park area.
- (2) One hundred feet of post and rail added and a gate removed near Black Dog Park.

West Wilkie Unit

- (1) Water level gauge installed at Blue Lake main structure, Blue Lake middle road structure, Fisher Lake middle road structure and Fisher Lake outlet structure.
- (2) Constructed and graveled a 100' x 80' parking lot. Installed unit identification sign.



The Carver boat landing was a cooperative project of the city and the refuge as it also serves the refuge as a trailhead. MNV 8009 and 8008

Chaska Unit

A steel gate, 200 feet of post and rail, and an identification sign were installed at the Carver trailhead and boatramp.

Headquarters

- (1) Installed headquarters directional sign.
- (2) Painted pedestrian crosswalks on entrance road.
- (3) Painted one-way traffic directional signs on entrance road.



An overflow spillway from Blue Lake around the water control structure was built by P. Irrthum to prevent erosion when floodwaters recede. MNV 8226

2. Rehabilitation

Major rehabilitation was done on the area near the main water control structure at Blue Lake. Drainage ditches were shaped and sloped and rip-rapped around the structure to alleviate erosion that had begun on the north end of the water control structure. A six-way dozer was leased to accomplish the above mentioned work and several other storm-related projects.

A private contractor was employed to dig and bury three farm sites on the Wilkie unit. These sites included concrete foundations and silos.

Numerous smaller rehabilitation projects were accomplished through ARMS and base funding. The following is a listing of these by unit.

Long Meadow Lake

- (1) Bloomington dredged "Pond C," a storm water runoff holding pond and used the fill to repair the extensive damage to the Hogback Ridge Pond Dike.*
- (2) Repaired "washouts" on dike between Hogback Ridge Pond and Hogback Ridge Marsh.
- (3) Graveled foot trail between Old Cedar Avenue and Highway 77.
- (4) Repaired boardwalk to photoblind.*
- (5) Installed new water control structure on feeder pond to junction box to facilitate water movement in the Bass Ponds.
- (6) Rebuilt and installed leaflet box at Bass Ponds.**
- (7) Replaced cattail camouflage and photoblind after vandal(s) torched existing cover.**

Black Dog Lake

- (1) Reconstructed and repaired parking lot at north Black Dog parking lot.
- (2) Several washouts were repaired on the Black Dog trail.*
- (3) A ditch crossing was rip-rapped at the east end of the south Black Dog trail.
- (4) Trail to pedestrian overpass was shaped and graveled.*
- (5) Kiosk at Black Dog Park was cleaned after being stained by fruit thrown by vandals.**

Wilkie Unit

- (1) One quarter mile of service road/trail was graveled.
- (2) Old trail was cleared by dozer from County Road 18 to the middle road.
- (3) Graded trail and filled in washout on east end of Wilkie Unit.*

Upgrala Unit

- (1) Removed gate from boundary near Highway 169.
- (2) Secured area after vandals broke all windows in Stanley House.**

Chaska Unit

- (1) Assisted personnel from Carver with a plugged water control structure.

Louisville Unit

- (1) Placed rip-rap and gravel in a washout caused by beaver on Mazomoni Trail.
- (2) Repaired security gates to Jabs Farm Granary after vandals broke in.

Headquarters

- (1) Cedar roof shakes were replaced.
- (2) Conference room walls were painted.

* - Caused by July superstorm

** - Caused by vandalism

3. Major Maintenance

No major maintenance occurred.

4. Equipment Utilization and Replacement

Plans were made to upgrade the refuge vehicle fleet during 1987. The following is a list of vehicle ownership and a replacement schedule.

<u>Vehicle</u>	<u>Ownership</u>	<u>Replacement</u>	<u>Date</u>
1980 CJ-5	GSA	Jeep Cherokee 4x4	2/88
1982 J-10 pickup	GSA	3/4 Ton 4x4 pickup	2/88
1984 Plymouth Wagon	GSA	Mini-van	3/88
1980 2.5 Ton GMC Dump Truck	GSA	1988 2.5 Ton Ford Dump Truck	2/88
1982 Ford Ranger	GSA	New small pickup	3/89
1985 Dodge 1/2 ton pickup	GSA	New 1/2 ton pickup	1990
1985 S-10 pickup	GSA	New small pickup	2/88
1987 Chevrolet Cavalier*	FWS	Replaced	1992

*Regional Refuge Biologist Property

Because the refuge is located within the General Services Administration motorpool service area, all refuge vehicles are leased from General Services Administration and maintained to their specifications by local service stations and dealers.

The refuge borrows a low-boy trailer from the Bureau of Mines. The tri-axle, 26' x 8', 20,000 pound rated trailer was fitted with a new plate steel floor and folding loading ramps during the winter. It

works okay for most purposes but it is too small for hauling heavy equipment on long and frequent trips.

The 2 1/2 GMC half-ton dump truck had a new transmission and starter installed.

The Plymouth Reliant station wagon had a front wheel bearing and 2 tires replaced.

The Dodge 1/2 ton pickup had two tires replaced.

The Ford Ranger had two tires replaced.

The J-10 pickup had a drive shaft, universal joints and a clutch replaced.

All vehicles had tune-ups and the antifreeze replaced.

5. Communication Systems

The refuge radio system was upgraded when four "King" hand-held units were purchased to replace the General Electric hand-held units that were stolen during a burglary. The King Radio units are superior with clearer reception over much longer distances. The new radios are also programmable which enabled us to include the State Department of Natural Resources' State Park and Conservation Officers, State Police Emergency channel and the Scott County Sheriff frequencies.

The repeater at Jordan has been working well most of the time but we still have times at the Louisville Unit when no one can be reached. Hopefully, these incidents will become few and far between in the future as we iron out the bugs and learn the system.

The passive infrared sensor burglar alarm system installed in 1985 continued to sound false alarms until repair persons desensitized a sensor in the basement. The false alarms were much less frequent after the repair but still do occur. The two break-ins in early 1987 prompted us to add an audio alarm to the system and to encase the incoming phone line in heavy metal pipe. No further attempts to break in were detected.

6. Computer Use Development

A substantial amount of work was accomplished on the refuge map atlas as new refuge unit boundaries, private property boundaries for lands proposed for acquisition, and the local mosquito control district treatment sites were digitized into the computer database at the Land Management Information Center. The project was brought to a temporary halt due to summer field activities but will resume in February 1988 at which time full color, hard copy maps will be printed and bound together as the refuge map atlas.

7. Energy Conservation

Calendar Year 1987 - Energy Use

Quarters of year:	#1	#2	#3	#4	Total	% Change From 1986
Electric	10,580	4,180	6,331	7,338	28,429	-16
Fuel Oil	797.2	--	--	534	1331.2	-16
Diesel	--	150	50	--	200	-357
Gas	448.7	776.28	853.3	798	2876.28	+24

Stable fuel oil prices and an extremely warm winter explains the heating cost savings.

The electricity savings was unexpected because the two new offices are heated by electricity.

The fuel oil increase was due to the use of the RF1 hydroaxe for clearing fields during December.

The increased gas useage is, in part, attributed to an above average incidence of long trips to meetings, training sessions, and the Farm Bill activities.

J. OTHER ITEMS

1. Cooperative Programs

Cooperation with others at Minnesota Valley National Wildlife Refuge is a matter of survival. Much of the refuge's existence is based on cooperative relationships with outside organizations so maintaining those relationships is a very important part of the refuge staff function. As a result there are a significant number of cooperative ventures ongoing most of the time. Rather than describe them in detail the following list merely names the organization and briefly describes the activity.

a. Ducks Unlimited

The Ducks Unlimited has constructed a dike and water control at the Jabs Farm to provide management capability on 350 acres of floodplain marsh. They have indicated verbally that they intend to design the Louisville upper impoundment in 1988 and begin construction of it in 1989. Hopefully the middle impoundment will be constructed in 1990.

b. Minnesota Department of Natural Resources

The Service and the Department jointly manage and maintain an extensive trail system on the Louisville Unit of the refuge and the adjacent Carver Rapids State Park.

The Service and the Department have a standing equipment exchange agreement and this year the Wildlife Division borrowed the refuge grass drill while the refuge borrowed the Park Division's tree spade.

The Service and the Department agreed to exchange prairie grass seed so that the Department could utilize refuge seed for Reinvest in Minnesota plantings on Department lands. The seed was not available elsewhere.

The Service and the Department have a cooperative management agreement to jointly manage the Black Dog Preserve.

c. Carpenter Nature Center

The refuge has equipment exchange agreement with the nature center primarily to allow the center to use the refuge grass drill.

d. Northern States Power Company

The refuge has a lease from the Company for the use of company lands around Black Dog Lake. This year the Company also donated to the Service a pedestrian bridge across the railroad.

e. Chicago Northwestern Railroad Company

The railroad has given the Service a license to maintain the pedestrian bridge that Northern States Power donated.

f. City of Carver

The City and the Service have an agreement to jointly construct and maintain a trailhead and boat ramp on city property. The agreement incorporates some City-owned marshland into the refuge and provides for establishment of a refuge trailhead on City property. The boat ramp and parking area were completed this year.

g. City of Burnsville

The City and the Service have an agreement that allows the Service to maintain a refuge trailhead (information kiosk) on city property and visitors to use parking spaces in the Metropolitan Transit Commission's Park and Ride parking lot.

h. Hennepin County Suburban Regional Park District

The Service has a lease with the Park District for the Wilkie Unit that will, after 10 years, provide for the fee title transfer of the land to the Service. In the mean time the land is managed as an unit of the refuge.

i. Metropolitan Waste Control Commission

The Service is leasing about 80 acres of Commission land near the Blue Lake Treatment Plant as wildlife refuge. This lease incorporates some good upland habitat and allows the Service to maintain a more logical boundary and hiking trails. We also have a Commission easement to utilize the Black Dog Lake Sewer Interceptor line right-of-way as a hiking and maintenance trail.

j. Minnesota Department of Transportation

The Service has a limited use permit from the Department which allows the incorporation of Department lands into the refuge near and under the Highway 77 river bridge and the 80 acres of marsh on the southeast corner of the Wilkie Unit.

k. Freshwater Foundation

The Foundation has on two occasions agreed to serve as a contracting agent for scientific studies on the refuge. The first one, completed last year was an analysis of the plant and invertebrate life in Long Meadow Lake. The one started this year is on the effects of a mosquito control agent on the invertebrate population as it relates to waterfowl populations. The field studies have or are being done by university staff.

l. Minnesota Waterfowl Association

The Association is working with the refuge on several projects to improve waterfowl habitat. They donated \$500 to purchase waterfowl nesting platforms and next year expect to assist refuge staff in

their installation as well as help with several larger projects. That involves installation of stop-log riser control structures.

m. Scott County Highway Department

This is a new relationship that is just beginning but may well lead to the Department providing major assistance on waterfowl habitat improvement projects on the refuge as mitigation for losses elsewhere due to highway projects. The Minnesota Department of Natural Resources has arranged the first project which will be the placement of several water control structures on the Wilkie Unit. Representatives of the Department of Natural Resources and the County have reviewed the work sites and the initial paperwork has been processed.

n. Muskies, Inc.

The Service has annually issued a special use permit to Muskie, Inc. so that they may use one or both of the Bass Ponds for Muskie fingerlings and in turn Muskies, Inc. has assisted in maintenance projects in the Bass Ponds Environmental Education Area.

o. Hennepin County Sheriff Department and
Eden Prairie Police Department

Both agencies are looking to relocate their firearm training ranges and, in the process, upgrade them considerably. Each have contacted the refuge and the refuge staff has cooperated by investigating possible sites. This is being done with the idea that the ranges could also be used for hunter education as well as training of Service law enforcement personnel. The emphasis on education in the Minnesota Valley National Wildlife Refuge Act and the Director's encouragement of firing ranges on refuges for educational purposes has encouraged a positive staff response. At years end, the Hennepin County proposal seems too large for the Wilkie Unit site (near Rice Lake) and is not likely to proceed. The Eden Prairie Police draft cooperative agreement is under review in the Regional Office and by the City Attorney.

p. Sever Peterson

Mr. Peterson, a co-landowner on Rice Lake in the Upgrala Unit has suggested a joint project to install water controls to improve the lake for waterfowl. It is a good idea and the refuge has cooperated by preparing the necessary construction permits and plans to build one structure on Service land. Another will be at Mr. Peterson's property.

2. Other Economic Uses

As in past years the refuge issued a special use permit to the Renaissance Festival, Inc. for the rental of the small triangular shaped piece of land isolated by railroad tracks at the Louisville

Unit. The Renaissance people have desired this tract of land for many years for overflow parking and since it is outside of the designated refuge boundary and of small wildlife value the refuge staff has always encouraged a land exchange. As long as that possibility existed we have continued to issue the permit on an annual basis. This year it was specifically stated on the permit that this was to be the last year of issuance as the land exchange seems less and less realistic.

3. Items of Interest

a. Congressional Contracts

Congressional relationships remain strong at this refuge due mainly to the liaison function of the Friends of the Minnesota Valley. As an example the friends hosted their annual Congressional Aide luncheon in the refuge conference room and there was attendance from most of the nearby Congressional Districts as well as one from a U.S. Senator's office. The Friends also invited Congressman Sabo and U.S. Senator Dave Durenberger to visit the refuge where they received a briefing on the plans for the wildlife interpretive center. Throughout the year there were other individual visits by the Congressional Aides as we seem to benefit from official visits by the Aides who return to the home district on official trips around federal holiday time.

Generally we are on a first name basis with the Aides who handle environmental matters for Minnesota Congressional Districts and most of the Representatives and Senators also have personal knowledge of the refuge and staff.

b. The Friends of the Minnesota Valley

The Friends focused most of their activity on two projects this year; funding for the interpretive center and for their own Heritage Registry Program which is the establishment of a buffer protection zone around the refuge.

They were quite successful in the former as at the end of the year the U.S. Congress appropriated the final \$2.68 million needed to complete the funding for the refuge wildlife interpretive center, however, the Heritage Registry Program is moving slower than anticipated. An elaborate description of the program has been prepared and is being used to make grant applications to local foundations. Unfortunately, the Foundations move slowly and only a few have responded. To date, the Friends have received about \$4500 of the \$100,000 that they need to complete the program. Funding for this program does not look good unless a single donor comes forth with the majority of the funding. Most foundations are now taking up the slack in the human welfare area and environmental matters are of lesser importance.

On a smaller scale financially but of considerable importance to the refuge staff is the continued support the Friends give to the Volunteer Recognition program. The Friends have purchased windbreakers, T-shirts, and coffee cups that the refuge staff uses to

recognize volunteers for contributed time. The Friends have also paid for refreshments and other items when the refuge staff has hosted Environmental Education workshops, luncheons for the local Chamber of commerce representatives and nearby hotel managers. These luncheons, courtesy of the Friends, have been used very successfully in getting together community leaders for informal discussions on refuge issues.

c. Gift Program

There has been little use of the refuge gift catalog again this year because the refuge staff has not had the time and resources to promote it. It takes money to solicit money and we don't have those kinds of dollars available. One action item resulting from the official inspection of the refuge was a revision of the gift catalog to include a new listing of smaller items that would-be donors could specify what they want purchased with their money. This was accomplished but it is not expected to make much difference. The main problem of the gift catalog is its lack of distribution. We need to make mailings to specific target audiences just like the successful retail catalog distributors do it.

Total direct cash donations to the refuge this year were just over \$500. In directly the refuge benefited from reprinting of the bird list by the Audubon Society and the free loan of heavy equipment by local equipment dealers.

d. Metropolitan Mosquito Control

This issue was almost dormant this past year. The publication of the refuge final environmental assessment on mosquito control was held in abeyance until the Metropolitan Mosquito Control District Supplemental Environmental Impact Statement was completed. As a consequence, all permits authorizing control operations on the refuge were withheld until the refuge assessment was finalized. Since the District's Statement was not completed until late December, the refuge was in a standby mode most of the year. Fortunately, mosquito breeding conditions were poor due to the dry conditions so the Control District was not under any pressure to find a scapegoat. Two years have now gone by without mosquito treatment of refuge marsh areas and no one seems to be suffering enough to be making a big issue of our temporary prohibition against mosquito control. Unfortunately, the next big surge of mosquito bites will stimulate a new round of finger pointing and while the refuge will probably not be the cause it will be blamed if there is no control occurring.

e. Take Pride in America Program

Specific Take Pride activities tapered off considerably from last year although the refuge continued the Annual Clean-up Day, the Valley Watch Program and the Volunteer Ranger Corps all of which were started the previous year under the auspices of the Take Pride Program.

The refuge received a Certificate of Merit Award from Interior Secretary Hodel for it's take pride activities and we have been told

that another one is coming for being one of the Service's finalists in the national awards competition, but is is being held in the Regional Office for an appropriate ceremony.

f. Metropolitan River Corridor Study Committee

Although the formal work of the Metro River Study Committee was completed last year there has been some action this year on the Committee's recommendations that affect the refuge. The main accomplishment was the adoption of a provision in the Metropolitan Council's Policy Plan/Development Guide that allows recognition of state and federal lands as part of the regional park and open space system.

Following adoption by the Metro Council of this new provision the Minnesota Department of Natural Resources and the Service submitted the Minnesota Valley Comprehensive Plan to the Council for consistency review and subsequent inclusion of the Minnesota Valley Wildlife Refuge, Recreation Area and State Trail as a unit of the regional park and open space system.

Previously, the refuge did not receive the same consideration and protection in the administration of local and regional land use as lands which are part of the regional system. This makes protection of the refuge from encroachment and infringement extremely difficult. Now that the refuge is part of the system all developments or local land use plan changes that occur will be reviewed and approved by the Meatopolitan Council which can require changes if those developments are inconsistent or impact too severely on the refuge. It is another tool the refuge staff has available to protect the refuge.

g. Wildlife Interpretive Center Status

At the close of the year the refuge staff was notified by Congressman Sabo's office that the U.S. Congress and the President did approve an appropriation of \$2.68 million for the construction of the refuge wildlife interpretation and education center. This money will be added to the \$3.2 million appropriated last year and allows construction to begin.

Throughout the year, the refuge staff has been working with Ellerbe Architects, Inc., our neighbor to the west and the Burdick Group of San Francisco, California, in the development of the building and exhibit design. At the end of the year, 95% of the building and grounds design and 50% of the exhibit design has been completed. It has been a new experience for the staff, sometimes difficult, and it required alot of time not work-planned. However, the staff certainly has had every opportunity to participate in the design of the building and if it doesn't work we can hardly blame it on the lack of opportunity for input.

The exhibit planning has been more of a challenge. The designer's approach is different from what we are familiar with and until near the end of the first phase of the design the refuge staff has been

uncomfortable with the design. It all seems to be coming together now and for the most part we feel good about the future of the exhibit program.

h. Environmental Management Program

A new thrust was initiated on the refuge. It was precipitated by the passage of PL 99-662 (Water Resources Development Act of 1986). Which impacts the Minnesota Valley National Wildlife Refuge as well as other refuges in Region 3.

The Act requires the Secretary of Defense, in consultation with the Secretary of the Interior and the States of Illinois, Iowa, Minnesota, Missouri, and Wisconsin, to undertake, the following as identified in the master plan-

- (a) a program for the planning, construction, and evaluation of measures for fish and wildlife habitat rehabilitation and enhancement;
- (b) implementation of a long-term resource monitoring program;
- (c) implementation of a computerized inventory and analysis system.

In addition, the Secretary of Defense, in consultation with the Secretary of the Interior and the States of Illinois, Iowa, Minnesota, Missouri, and Wisconsin, shall determine the need for river rehabilitation and environmental enhancement and protection based on the condition of the environment, project developments, and projected environmental impacts from implementing any proposals resulting from increasing the commercial navigation locks on the Mississippi, Illinois, St. Croix and Minnesota Rivers.

These environmental measures for the rivers were passed by the U.S. Congress to satisfy the environmental concerns over the construction of a second lock at Lock and Dam 26, on the Mississippi River, in Alton, Illinois at a cost of \$220,000,000. Barge traffic and its impact is expected to increase as a result of the second lock.

As a result, money may become available for study and improvement of habitats on the refuge. Fiscal Year 1988 is the first year of this 10 year program. Congress has appropriated 5.168 million dollars. Of this, approximately 2 million will go to a Long Term Resource Monitoring Program and the remainder to habitat enhancement projects. At this time, none of the habitat monies will be spent on Minnesota Valley National Wildlife Refuge projects. However, four projects have been submitted to the Corps of Engineers for consideration in future years. These projects are: (1) Bank stabilization on the Minnesota River; (2) Long Meadow Lake water control structures; (3) Rice Lake/Eagle Creek water control structures; and (4) Black Dog Lake Islands. If these projects are funded it will help the refuge meet its wildlife objectives.

4. Credits

The following staff members assisted in the preparation of this narrative report.

Edward S. Crozier

- Highlights
- Land Acquisition
- Planning
- Other Items
- Feedback

Terry M. Schreiner

- Habitat Management
- Wildlife
- Equipment and Facilities
- Safety

Mary Mitchell

- Habitat Management
- Wildlife
- Computer Systems
- Research

Edward R. Moyer

- Interpretation
- Youth Programs
- Law Enforcement
- Other Work Programs

John Schomaker

- Public Use
- Hunting
- Fishing
- Trapping
- Wildlife Observation
- Other Wildlife Recreation

William Botsford

- Outdoor Classrooms

Kate Winsor

- Climatic Conditions
- Volunteer Program

Pam Tucker

- Funding
- Personnel
- Other

The report was typed and assembled by Pam Tucker and Ann Jurva. Editing was done by Kate Winsor, Mary Mitchell, and Edward Crozier. Report preparation was coordinated by Edward Crozier and John Schomaker.

Photos 7758 and 7764 were provided by Steve Eggers of the U.S. Corps of Engineers. Photos 8186, 8190, 8196, and 8197 were provided by Tom Crum, Refuge Volunteer.

K. FEEDBACK

The most positive feedback concerns wildlife and its abundance. The Minnesota River Valley is overflowing (too many, in some cases) with white-tailed deer, beaver, raccoons, Canada geese and, this year, very good breeding populations of mallards, wood ducks and pheasants with additional sightings of turkeys, coyotes, and bald eagles. There have even been sightings of peregrine falcons near refuge headquarters.

This abundance is due to favorable weather conditions, hunting or lack thereof and an improvement in the quality of the environment. There is nothing we do about the weather, but hope that we are at the beginning of a dry cycle and that the persistent high river floods are not a continuous phenomenon. Harvest management should get better as there is growing awareness, on the part of city governments, that they do have a role in harvest management as a result of their trapping and shooting ordinances. Locally, the refuge staff is having an impact on the quality of the environment in terms of reduced physical encroachment and better water quality, but the larger improvement is probably due to a greater awareness on the part of society in general, particularly in terms of the use of chemicals in the environment.

This greater abundance of wildlife is not restricted to the Valley, as wildlife seems to be on the increase throughout the state, due probably to the new farm programs and an upturn in the cycles of several forest species. It looks like a new, more prosperous decade for wildlife in Minnesota, except for waterfowl, which is experiencing setbacks on a statewide and national basis. In many respects the the Fish and Wildlife Service is like the Soil Conservation Service. Both have been in business for decades and their primary product, soil conservation and waterfowl production, is worse now than when we began our work.

Something needs to change. Maybe we need to update our thinking about waterfowl in terms of its present status and value to society. For the most part our basic management philosophy has not changed for many years, but the world and its people have changed dramatically. Attempting to provide large bag limits may no longer be realistic or even needed for the majority of the public interested in waterfowl. A smart business person would identify the needs of their largest target customer group and proceed accordingly. They would not survive long squandering a valuable but dwindling product (ducks and wetlands) on fewer and fewer customers. The North American Waterfowl Management Plan may turn that around.

Frequently the tone of this Feedback Section depends upon the mood of the Refuge Manager at the close of the calendar year and since we have just received word about the appropriation of the remaining Wildlife Interpretive Center funds, a possible large land donation, and some favorable personnel actions, I would say that things are looking pretty good for this refuge. If the tone reflected the mood over the year it would vary, but remain fairly high overall.

The addition of the Wilkie Unit to the refuge has been a real plus. It is one large contiguous management unit with a great deal of wildlife management options and an abundant wildlife population. It is fun to work with, and adds immeasurably to the accomplishment of refuge objectives.

After several years of major river flooding a year of low water was greatly appreciated, particularly since it resulted in a very good year for waterfowl production. In a way it was like a glimpse of the good old days before wetland drainage caused consistent major flooding in the Minnesota River. The Old Timers in the Valley frequently tell tales of bountiful waterfowl. Since the habitat is still here we suspect that the annual flooding has had much to do with low waterfowl production numbers and, certainly, the quick pioneering of birds back into the habitat this year would seem to confirm that.

As always, as refuge manager, it is a pleasure to be involved with Minnesota Valley National Wildlife Refuge because of the people as well as the wildlife. Somehow, we always manage to put together a super staff that is supported very well by the Regional Office staff and the interested public.

minnesota valley national wildlife refuge



Refuge Staff:

Edward Crozier - Refuge Manager
Terry Schreiner - Assistant Refuge Manager
Mary Mitchell - Biological Technician
Susan Linneman - Refuge Manager Trainee
Paul Irrthum - Maintenance Man
Pam Tucker - Secretary
John Schomaker - Sr. Outdoor Recreation Planner
Ed Moyer - Outdoor Recreation Planner
Bill Botsford - Outdoor Recreation Planner
Kate Winsor - Park Ranger

January, 1988

A special thanks to volunteer Debra Norrgard for providing the artwork.

The Wilkie Unit

Imagine driving south on Highway 18, crossing the Bloomington Ferry Bridge, and then turning toward Shakopee on Highway 101. If you look to the right through openings in the trees, you will get tantalizing glimpses of some unusually rich wetlands. In the fall, skeins of waterfowl rise from Fisher or Blue Lake, circle, and often drop again to resume feeding. Before ice sheathes the lakes, tundra swans sometimes stop to rest on their migration to the Chesapeake Bay. Bald eagles are occasional visitors.

Minnesota Valley's Wilkie Unit is a rich wildlife legacy that began in 1969 with a gift from James B. Wilkie to the Metropolitan Park Foundation. It consisted of 800 acres near Fisher and Blue Lakes with an option to purchase another 320 adjacent acres. The Foundation gave this land to Hennepin Parks who bought 80 more acres to bring the total to 1,200 acres. But, because the area floods every other year, the Parks people recognized that the Unit had limited potential for park development.

When the Minnesota Valley National Wildlife Refuge Act was amended in 1984, Wilkie Regional Park was designated a Refuge Unit-- a change from its status as a recreation area. Congressional policy would not allow the appropriation of funds to buy public lands, but, on July 1, 1986 a lease agreement with Hennepin Parks permitted Minnesota Valley National Wildlife to lease the area for wildlife management and wildlife recreation purposes.

Refuge staff have posted the boundaries, improved the trails, and now patrol the area, and maintain water control structures on the Unit. A trailhead is being established a half mile west of the Highway 18/101 junction. Next summer a two-panel information kiosk, post and rail, and landscaping will further define the trailhead.

The western third of the Wilkie Unit is posted with special "Area Closed" signs that prohibit all public access to that area from March 1st to August 31st. This gives a great blue heron colony the space they need to nest and fledge over 200 young each year. Disturbance to the colony during nesting can lead to the death of young herons or abandonment of the nests.

Visitors to the Wilkie Unit can hike about a mile to the river and then downstream along a natural levee about a half mile to the huge cottonwoods that were growing tall when Dakota Indian canoes slipped past them 150 years ago. Horseback riding and cross-country skiing during the winter give visitors different perspectives of the Unit. Skiing to the heron nesting area is an experience which enables you to see some of more than 600 nests built in the forest canopy. If what you see on the Unit captivates you, just say thanks to the vision of one of Minnesota's pioneering conservationists, James B. Wilkie.

Visitor Center Status

The U.S. Congress has appropriated the final \$2.68 million to build the \$6 million refuge interpretive center. The architects have completed 95% of the design work, and the exhibit designer is 50% through the design stage. The final design will be completed by March, 1988 and the construction work is planned to begin in early summer.

Cross-country Ski Tours

Saturday, January 16 and Saturday, February 6: "Winter Survival or How the Critters Cope." Ski to the Jabs Farm with a refuge naturalist and learn about the land.

Saturday, January 23: Explore the new Wilkie Unit and see some of more than 600 nests in a Great Blue Heron nesting colony. Call 854-5900 for program times, snow conditions, and reservations.

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Water for Wildlife

Refuge wetlands protect wildlife by providing food and cover for many species of waterfowl, fish, and aquatic mammals. One way of meeting the food and cover needs of wildlife in wetlands is to artificially manipulate water levels. The refuge staff has recently begun to manipulate water levels on three large wetlands that previously were not controlled.

The Ducks Unlimited project at the Louisville Marsh (Louisville Swamp Unit) was completed last spring after several long-term delays due to flooding. The result is a first class water control structure that allows complete water level manipulation on 350 acres of floodplain marsh. Formerly, large water level fluctuations prohibited waterfowl from nesting, resting, and feeding during flood periods. The new facility will stabilize these large water fluctuations and provide a more reliable habitat condition.

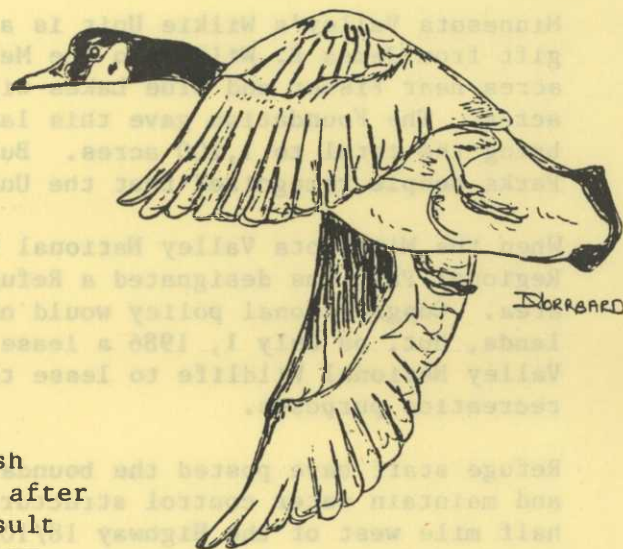
The new Wilkie Unit (see related article) has two large floodplain marshes-- 250-acre Blue Lake and 300-acre Fisher Lake-- that also have water level control capability.

Another wetland management technique is being used near the junction of Old Cedar Avenue and the Minnesota River on the Long Meadow Lake Unit of the refuge. This 10-acre wetland was formerly a farmer's field. The refuge staff constructed a low level dike around the field. An artesian well is used to fill the basin after a cereal grain is planted and goes to seed. Japanese millet was planted this year. The result is a gourmet meal for waterfowl.

On your next visit to the refuge, we urge you to make a special effort to view these water control structures and the wetland habitat that is created.

Deer Herd Update

In an effort to reduce the deer herd, the refuge and the Minnesota Department of Natural Resources have cooperated over the last four years in providing public deer hunting opportunities in the river valley. Opportunities for hunting with shotgun, bow, and muzzleloader have been provided. The hunt has an excellent safety record and it has been moderately successful in stabilizing herd growth. Mary Mitchell presented a paper on the development and implementation of this Metro Deer Hunt on December 7th at the Midwest Wildlife Conference in Milwaukee, Wisconsin.



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
MINNESOTA VALLEY NWR
4101 East 80th Street
Bloomington, Minnesota 55425

1987 Bow & Arrow DEER HUNT

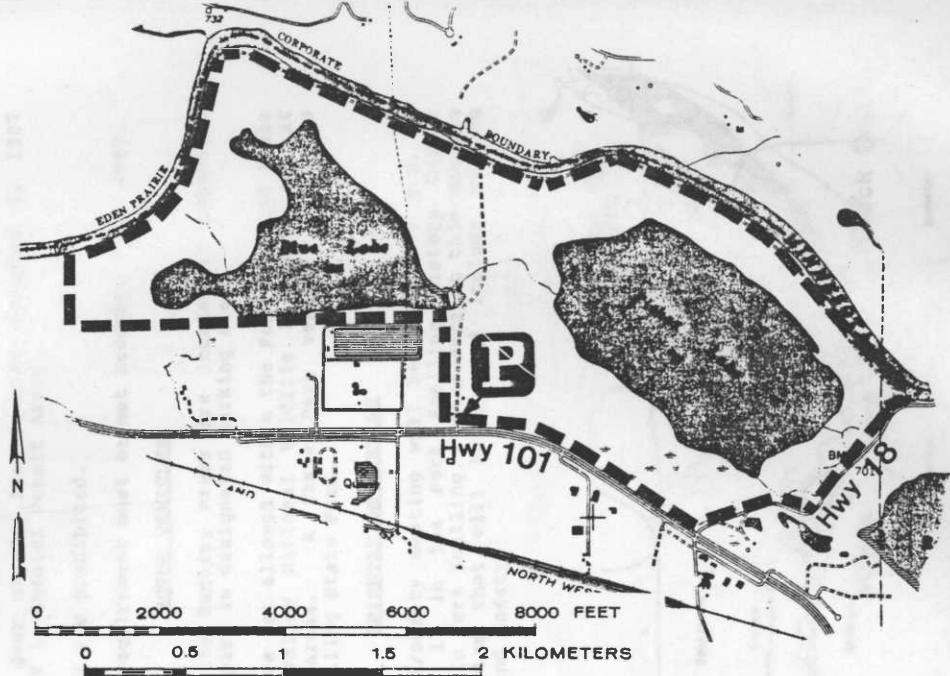


Minnesota Valley
NATIONAL WILDLIFE REFUGE

AND

Fort Snelling
STATE PARK

Minnesota Department of Natural Resources
U.S. Fish and Wildlife Service

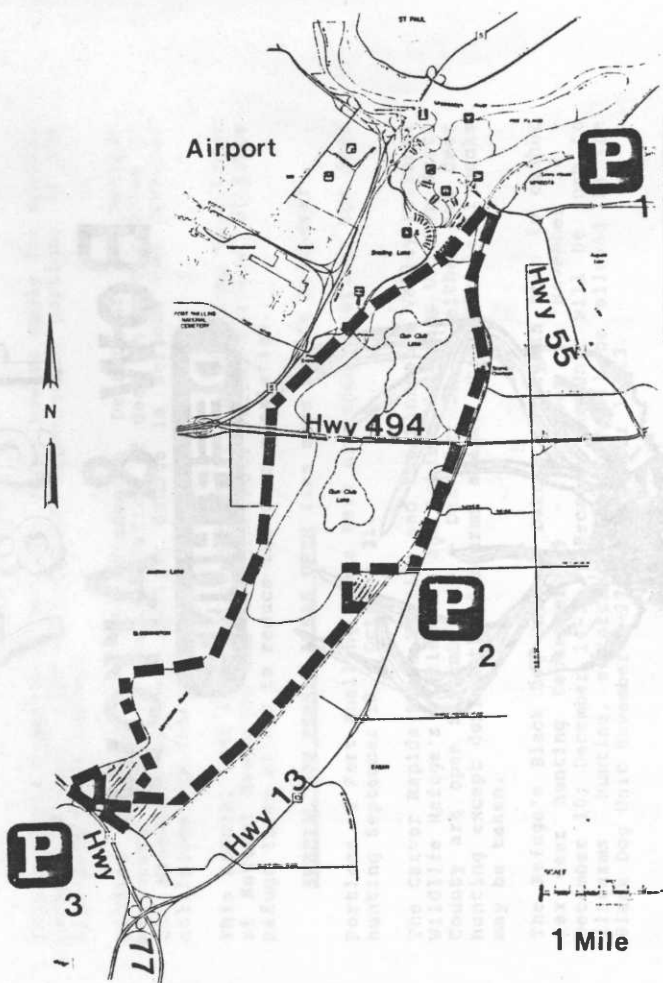


WILKIE UNIT

Location: Refuge land east of Valley Fair and west of Highway 18.

Parking: P-Highway 101 east of Blue Lake Treatment Plant.

Season: September 19 - December 31



FORT SNELLING STATE PARK

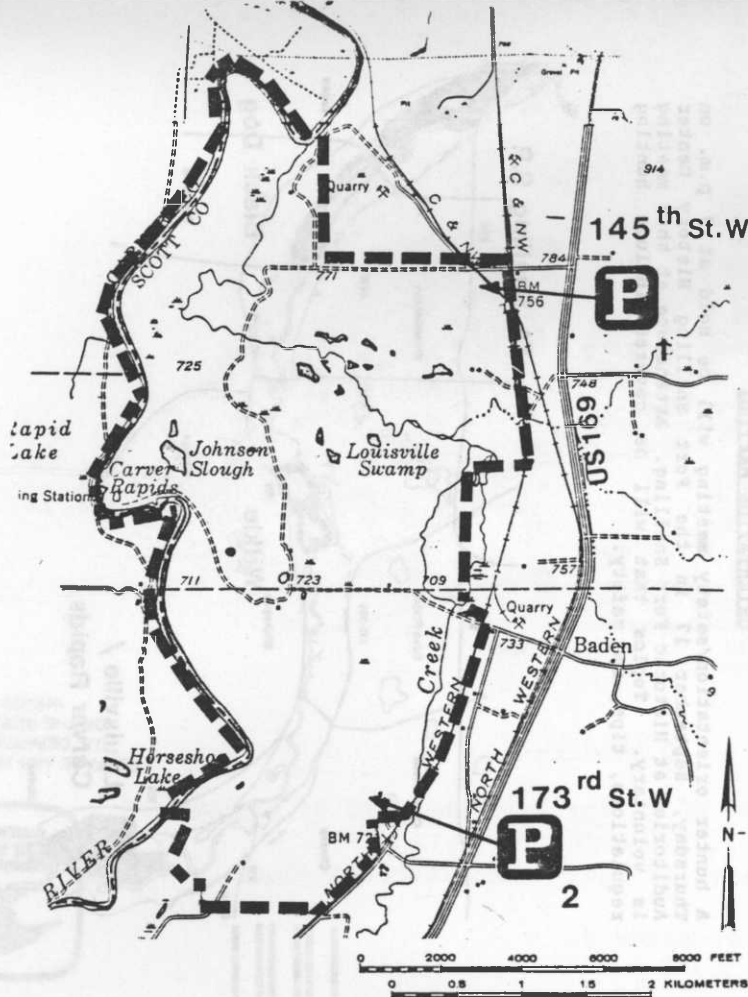
Location: State Park land between Mendota Bridge & Highway 77, east of the Minnesota River, and west of the railroad.

Parking: P1-Sibley Gate

P2-Trail Access

P3-Jens Casperson Landing

Season: September 19 - October 31

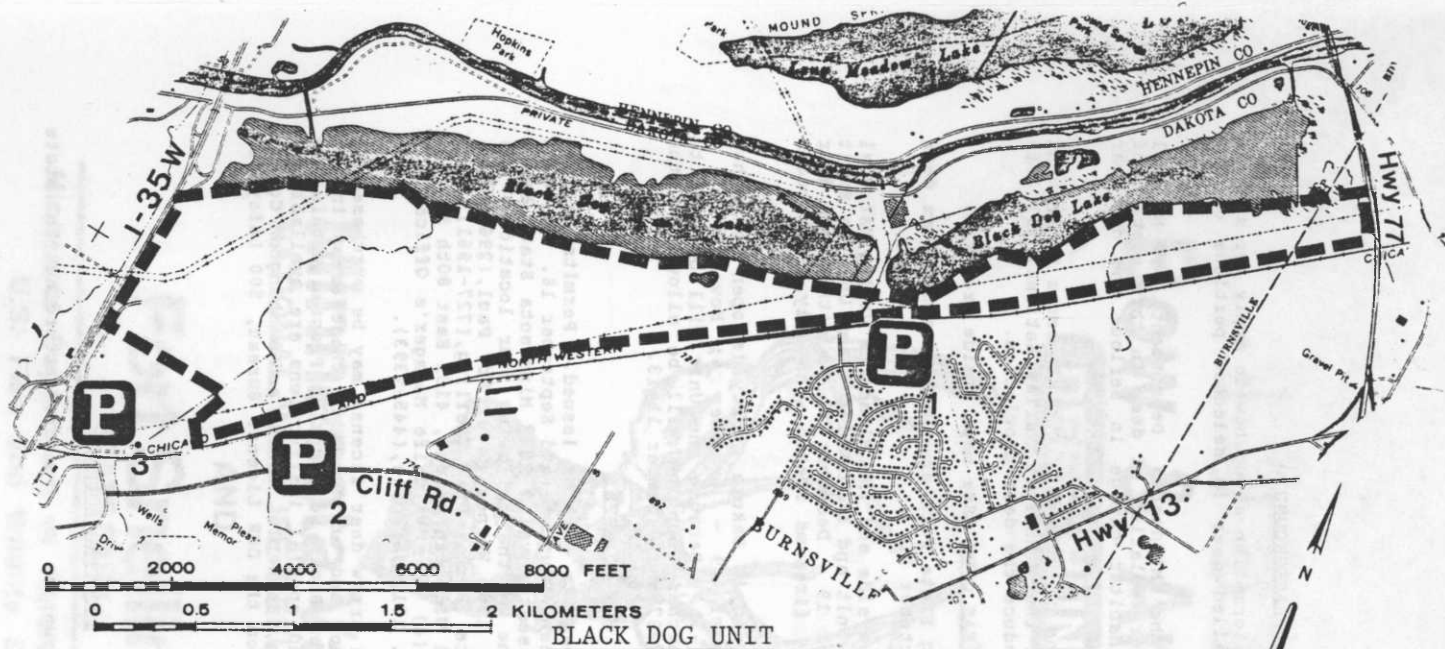


LOUISVILLE SWAMP / CARVER RAPIDS

Location: State Park and Refuge land between the railroad and the Minnesota River, south of the Bryan Rock Quarry, and north of the Valley View Rest Home.

Parking: P1-Main entrance at 145th St. W.
P2-End of 173rd St. W.

Season: September 19 - December 31



Location: Refuge land between 35W & Highway 77, south of Black Dog Lake, and north of the railroad.

Parking: P1-From Highway 13 take River Hills Drive west to Radisson Drive. Go north on Radisson to parking lot near Black Dog City Park.

P2-MTC Park & Ride Lot at Cliff Road

P3-End of 121st Street

Season: September 19 - November 6; November 28 - December 10; December 14-31

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FISH AND WILDLIFE SERVICE
MINNESOTA VALLEY NATIONAL WILDLIFE REFUGE
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Minnesota Valley



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DNR -----

REFUGE---854-5900





The Minnesota Valley National Wildlife Refuge Recreation Area and State Trail has implemented a program called VALLEY WATCH. Our objective is to encourage valley visitors and neighbors to take an active role in protecting and preserving your valley. Please be alert for uncontrolled fire, safety hazards, vandalism, and crime. If you observe one of these problems in the valley, please report your observations to any U.S. Fish and Wildlife Service or Minnesota Department of Natural Resources employee. If you feel there is need for emergency response, stop at the nearest phone and call 911.

Wildlife Refuge (612) 854-5900
Minnesota DNR (612)
Police (612)

**Together we can keep
the Minnesota Valley
a safe and enjoyable
experience for all.**

* If you observe criminal activity, do not attempt to take action yourself. This is a job for a law enforcement officer. Please note the location, descriptions of the people involved, license numbers and report the incident as soon as possible.

* Avoid becoming a victim. Lock your doors when leaving your car.

* If you must leave valuables in your car, lock them in the trunk - out of view from criminals.

**Help Protect
and Preserve
the
Minnesota Valley!**



Gifts for Wildlife

This Gifts Catalog is for people and organizations who care about wildlife. By making a donation, you can help build the Minnesota Valley National Wildlife Refuge and guarantee future generations the gift of wildlife.

Help Sponsor Student Research

By funding research projects you can help provide the answers to questions crucial to the management of valley wildlife. University wildlife management students will conduct studies of white-tailed deer, wood ducks, egrets, herons, songbirds, muskrats and raccoons. Students will evaluate the effects of urban storm water run-off on refuge marshes.

Three month summer study	\$1,200
One year special study	\$8,000
Two year masters project	\$16,000
Two year Ph.D thesis	\$20,000

Help the Public Enjoy the Refuge

Minnesota Valley Refuge is new, and most planned public use facilities are still undeveloped. You can help us make the refuge a better place for wildlife and people to meet by giving to one of these categories.

Facilities

Trail construction	\$8/ft.	Trailhead parking	\$1,500/space
Trail signs	\$200 ea.	Footbridge	\$300/ft.
Information kiosk	\$3,000 ea.	Outdoor classroom	\$20,000 ea.
Marsh boardwalk	\$45/ft.	Observation blind	\$10,000 ea.

Program and Materials

Sponsor a student intern naturalist	\$1,500/semester
Brochure design and printing	\$3,000 ea.
Environmental study materials for students	\$50/kit
Audio-visual equipment	\$300/projector
Color slide-sound program	\$1,000 ea.
Environmental education teacher workshop	\$1,000 ea.
Story-teller school visits	\$75 ea.

How to Donate

Please specify below which activity in the Minnesota Valley Refuge gifts catalog you would like to support with your donation.

Activity _____ Gift\$ _____

Activity _____ Gift\$ _____

Activity _____ Gift\$ _____

Or, if you do not specify an activity, you can make a donation of any amount. Just check here () Amount \$ _____

IMPORTANT: If you wish to donate an item rather than money for its purchase, please contact Refuge Manager Ed Crozier at (612) 854-5900 for specifications and to make the necessary arrangements.

Please make your check payable to the U.S. Fish & Wildlife Service and mail it, along with this gift selection form, to:

Minnesota Valley National Wildlife Refuge, 4101 E. 80th St.,
Bloomington, Minnesota 55420

Your Name _____

Organization _____

Address _____

Phone Number () _____ Signature _____

If you wish to discuss your donation, please call Ed Crozier at refuge headquarters (612) 854-5900. Or, if you prefer to have him call you, please check here ().

THANK YOU FOR YOUR SUPPORT!

Graphic design donated by Seitz Yamamoto Moss Inc., Minneapolis.
Printing donated by the Friends of the Minnesota Valley.



Help Preserve Wildlands

You can help create a living tribute to your own appreciation of the natural world by making a tax-deductible donation of land or dollars to purchase land in the valley. Any amount of donated money will help us purchase land that costs from \$1,000 per acre for wetland in the floodplain to several dollars per square foot for developable bluff land.

Help Wildlife Populations

Certain wildlife populations need monitoring and study to be maintained at optimum levels. Specialized equipment and people with special skills are needed to do this work.

Radio tracking equipment	\$6,000/set	Data processing	\$10/hour
Computer programming	\$50/hr.	Map plotter	\$10,000 ea.
Capture gear (nets, tags)	\$1,000/set	Vehicle	\$8,000 ea.



Help the Volunteer Program

Many people contribute their time to help build the wildlife refuge. Equipment is needed to help them do an even better job.

Binoculars to conduct wildlife surveys	\$100 ea.
Volunteer uniforms	\$75 ea.
First aid and CPR training for trail patrol	\$50/volunteer
Volunteer recognition materials	\$25/set

The refuge is always looking for new volunteers. Contact volunteer coordinator Tom Worthington at the refuge headquarters if you have an interest in helping us build a better refuge.

Help Promote Wildlife Giving

Printing and distribution costs of this gifts catalog will have to be multiplied many times to reach those people most likely to contribute to this wildlife conservation effort. Your donation could have a multiplier effect by helping to promote additional giving by others.

Reprinting this gift catalog	\$300 per 2,500 copies
Bulk mailing postage	\$50 per 1,000 copies
Purchase select mailing lists	\$250 per 1,000 names
Advertising package	\$10,000
Fund raising campaign	\$50,000

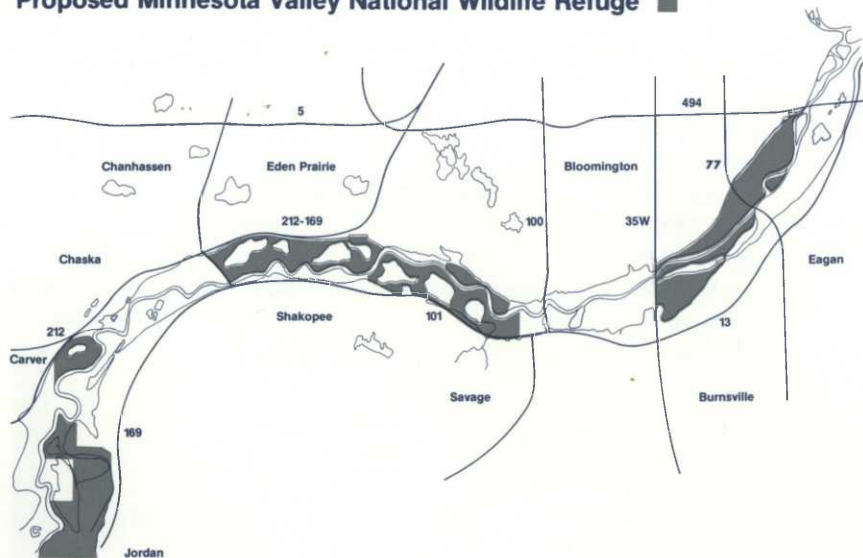
Help Create a Wildlife Refuge

Concerned citizens convinced Congress to authorize the Minnesota Valley National Wildlife Refuge in 1976. Although portions are already in public ownership and facilities are being constructed, it will take years to complete the refuge. In the meantime, precious opportunities to protect wildlife habitats and to provide wildlife oriented recreation and education will be lost.

This gifts catalog describes how you can support the refuge with a gift of money, equipment, materials, or your time. The examples listed give you an indication of the range of costs and the types of needs we have. Please indicate your choice on the donation form. Whatever form your tax-deductible gift takes we will recognize your generosity with a certificate and appropriate publicity, or if you prefer, your request for anonymity will be honored.

All donations (other than personal services) are tax-deductible charitable contributions. Federal tax law now allows a tax deduction for those who do not itemize deductions. You will receive a letter of appreciation acknowledging your gift and its value which can be used for income tax purposes.

Proposed Minnesota Valley National Wildlife Refuge ■



Gift Ideas for Wildlife

Help Enhance Wildlife Habitat

By helping to improve refuge habitats you are helping to increase the refuge's value to wildlife without actually expanding its boundary.

Wetlands

You can help finance projects to improve existing marshes, restore previously drained marshes, and create new wetlands to benefit waterbirds, aquatic mammals and amphibians.

Ditch plugs	\$250 ea.	Dikes	\$50/ft.
Backhoe rental	\$120/hour	Bulldozer rental	\$125/hour
Nesting islands	\$10,000 ea.	Ponds	\$2,000 ea.
Major control structure	\$75,000 ea.	Small weir	\$800 ea.

Grasslands

Native prairie exists in the Minnesota River Valley today only in scattered patches and there is a need to improve and expand these areas to benefit songbirds, small mammals, and prairie flowers.

Prairie grass seeding	\$400/acre	Prairie flowers	\$2/plant
Controlled burning	\$60/acre	Mulching	\$600/acre
Mowing brush	\$50/acre	Spraying	\$100/acre

Woodlands

The mature bottomland and bluff edge forests that border the valley provide sheltered migration corridors and year round homes for wildlife ranging from pileated woodpeckers to white-tailed deer. Funds are needed to develop information materials that will encourage private landowners to protect the valley forests.

Box 20244
Bloomington, MN
55420



ADDITIONAL GIFT IDEAS

Fence and Signs

Post and rail	\$1.00/ft.
Boundary signs	\$5.00/each.
Boundary sign posts	\$12.00/ea.
Sign bolts (1/4" X 2")	\$1.20/doz.
Gravel	

Class 5 gravel	\$6.50/ton
Rip-rap	\$10.00/ton

Maintenance Items

Locks for gates	\$15.00/ea.
Lag bolts (1/2" X 5")	\$6.00/doz.
Router bit	\$25.00/ea.
24" corrugated metal pipe	\$5.00/ft.

Microcomputer

MacIntosh+	\$1,695.00/ea
Hard Disk Drive	\$ 900.00/ea.
LaserWriter Plus Printer	\$5,000.00/ea
Software	\$700.00/ea.
Diskettes	\$2.50/ea.
Computer paper (1,000 sheets)	\$16.00/box

Prescribed Burning Tool

Fire rakes	\$25.00/ea.
Fire flapper	\$16.00/ea

Friends of the
Minnesota
Valley



Box 20244
Bloomington, MN
55420

Minnesota Valley

National Wildlife Refuge

Recreation Area and State Trail



A Summary Plan for the
Management and Protection
of the Minnesota Valley
National Wildlife Refuge.

Minnesota
Valley



Introduction

The significance of the Minnesota Valley as a wildlife and recreational resource was first officially recognized by Governor Floyd B. Olson in 1934, when he proposed a 42,000 acre park between Fort Snelling and the City of Shakopee.

Although that plan was never implemented, similar features were developed in the 1960's when Fort Snelling State Park was established, the Minnesota River was designated a State Canoe and Boating Route, and the Minnesota Valley Trail was authorized for 72 miles between Fort Snelling and Le Sueur, Minnesota. In 1976, the United States Congress passed the Minnesota Valley National Wildlife Refuge Act (PL 94-466).

Purpose and Objectives

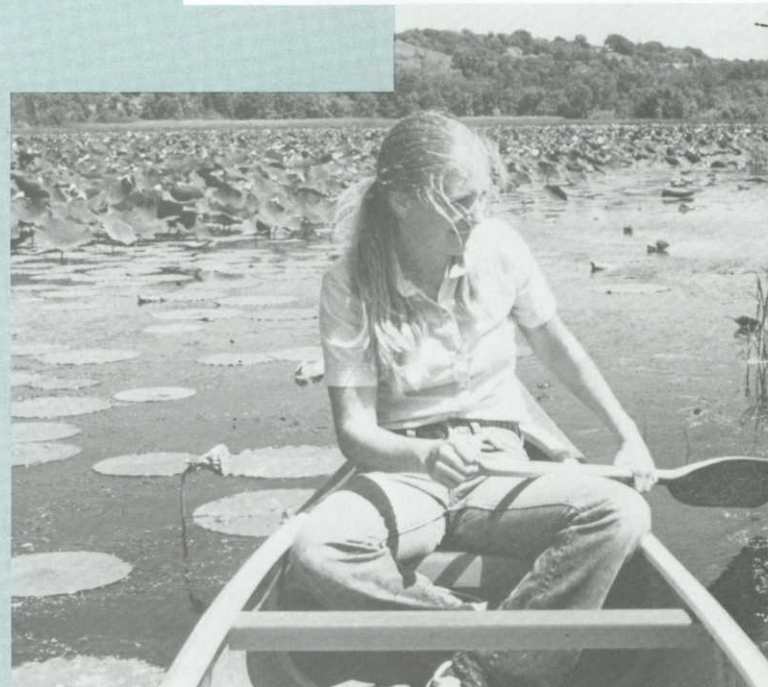
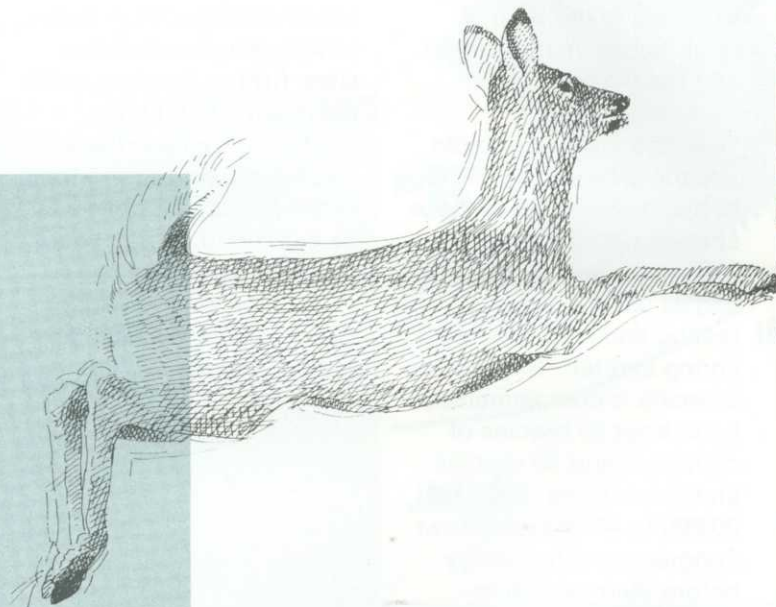
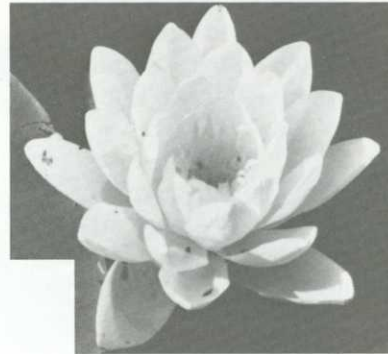
Recognizing the Minnesota Valley's unique qualities and opportunities, the federal legislation called for the establishment of the refuge to perpetuate the diversity and abundance of wildlife, as well as to provide wildlife-oriented recreation and education.

The Minnesota Valley National Wildlife Refuge Act also directs the U.S. Fish and Wildlife Service (FWS) to establish, in cooperation with the state of Minnesota and its political subdivisions, a wildlife recreation area in an area adjacent to the refuge and to provide for the Minnesota Valley State Trail.

Therefore, the wildland and wildlife resource management for the Minnesota Valley is shared by the FWS, the Minnesota Department of Natural Resources (DNR) and local governments. Private landowners also have an important role in providing for the overall habitat needs of wildlife throughout the valley.

Planning Coordination

Public participation and intergovernmental coordination have been important aspects of refuge planning. The planning process included numerous public hearings, workshops, personal communications and meetings with government officials and private citizens interested in the Valley's resources. Every effort was made to identify and clarify issues of concern to resolve conflicts prior to completion of the plan and to explain the goals and objectives of the refuge, recreation area and state trail.



The Plan

The Minnesota Valley National Wildlife Refuge, Recreation Area and State Trail, as proposed, will protect the natural floodplain and perpetuate the valuable wildlife and cultural resources of the Valley while providing unique recreational and educational opportunities for countless future visitors. A comprehensive plan prepared by the Minnesota Department of Natural Resources and the U.S. Fish and Wildlife Service presents management strategy for wildlife areas, parks, trails, and open spaces.

The plan outlines many of the problems and concerns which could affect the viability of the project. It also establishes guidelines and specific procedures for coordinating the interrelated roles of the many agencies and institutions involved in the management process. The plan will be implemented in stages and financed by federal, state and local governments as funding becomes available.

National Wildlife Refuge

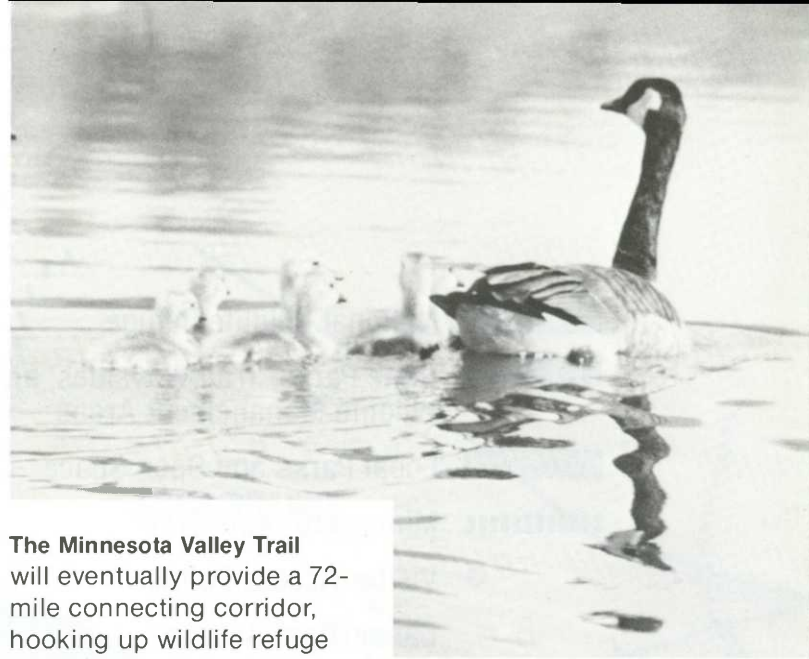
management programs have been designed to preserve and enhance natural habitat in order to maintain the ecological diversity and environmental health of the lower Minnesota River Valley.

As a guiding principle, vegetative diversity will be encouraged wherever possible to promote corresponding diversity and health of wildlife populations.

Special protection will be given to unique habitats such as the rock outcrops that support the fragile prickly pear cactus and the calcareous fens or bogs that support rare plants like shrubby cinquefoil and the small white lady's slipper orchid.

Public services will encourage citizen involvement in a variety of activities. Some individuals or groups will assist with wildlife studies, others will participate in trail programs or outdoor education programs, while others will simply enjoy wildlife and wildlife interpretive programs at leisure.

A federally-mandated Wildlife Interpretation and Education Center will provide visitors with hundreds of thousands of hours of educational and recreational opportunity each year.



The Minnesota Valley Trail

will eventually provide a 72-mile connecting corridor, hooking up wildlife refuge lands to trail systems in Hennepin, Dakota, Scott, Carver, Sibley and Le Sueur Counties.

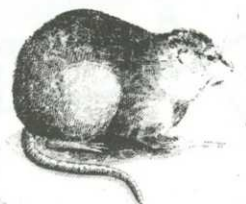
The Minnesota Valley Trail is designed for a variety of uses throughout all seasons, from hiking, bicycling and horseback riding to snowmobiling and cross-country skiing.

Eventually, there will be additional waysides and trailheads offering information as well as parking, restrooms, and in some cases, picnic areas, boat launches and campgrounds. Public transit to trailheads will be encouraged.

The Future

It is time to build for the future; time to act so that fifty years hence, metro region dwellers may still find refuge in a faster paced world. With concerted effort now, there will always be a Minnesota Valley greenbelt for all to enjoy.

This resource will live through the sounds, sights and signs of hundreds of wildlife species. It will also live through the expressions of those who come to the Minnesota Valley to listen, watch and learn. It will remain a tranquil yet accessible resource, diverse in its habitats and its uses; a treasure for the diverse people who will visit the area many years from now.





The Proposed Action

The Minnesota Valley National Wildlife Refuge, Recreation Area and State Trail is scattered along 40 river miles between Fort Snelling State Park and Jordan, Minnesota.

This portion of the Minnesota River is a vast greenbelt that includes wild prairies, hill-side hardwoods, floodplain forests, oak savannas and wetlands in the form of bogs, seeps, marshy lakes and the river itself.

Over 250 species of birds use the area during migration and about 150 of these species nest in the Minnesota Valley. Bald eagles use the area for resting and feeding each spring and fall. This wildlife diversity is complemented by at least 50 species of mammals and 30 reptiles and amphibians. Each fall, 30,000 to 40,000 waterfowl congregate in the Valley before their migration southward.

The wildlife refuge segment of the project will total about 12,500 acres in seven units which are primarily floodplain wetlands. At the present time (April 1984), 3,444 acres have been acquired in fee in scattered parcels and are being managed for wildlife and wildlife-oriented recreation.

Another 1,270 acres have been leased from Northern States Power Company and are managed as wildlife refuge. The FWS will acquire fee title, easement, lease, permit, and cooperative agreement interests on the remaining private and public lands within the boundary as shown on the enclosed map.

The existing recreation facilities and programs include environmental education sites, fishing, hunting, wildlife observation blinds, photography, boardwalks, and hiking/ski-touring trails. In the future, the trails will be expanded, more access provided and there will be more interpretation and demonstration of wildlife management activities.

Resource Protection Alternatives

The variety of wildlife habitat protection techniques that can be used in the lower Minnesota River Valley range from indirect influence on land use to direct control of some or all of the possible land uses. Most can only be implemented by local governments. The FWS can utilize only a few techniques in developing and protecting the proposed refuge. These include fee, easement, and lease acquisition, as well as cooperative agreements and use permits.

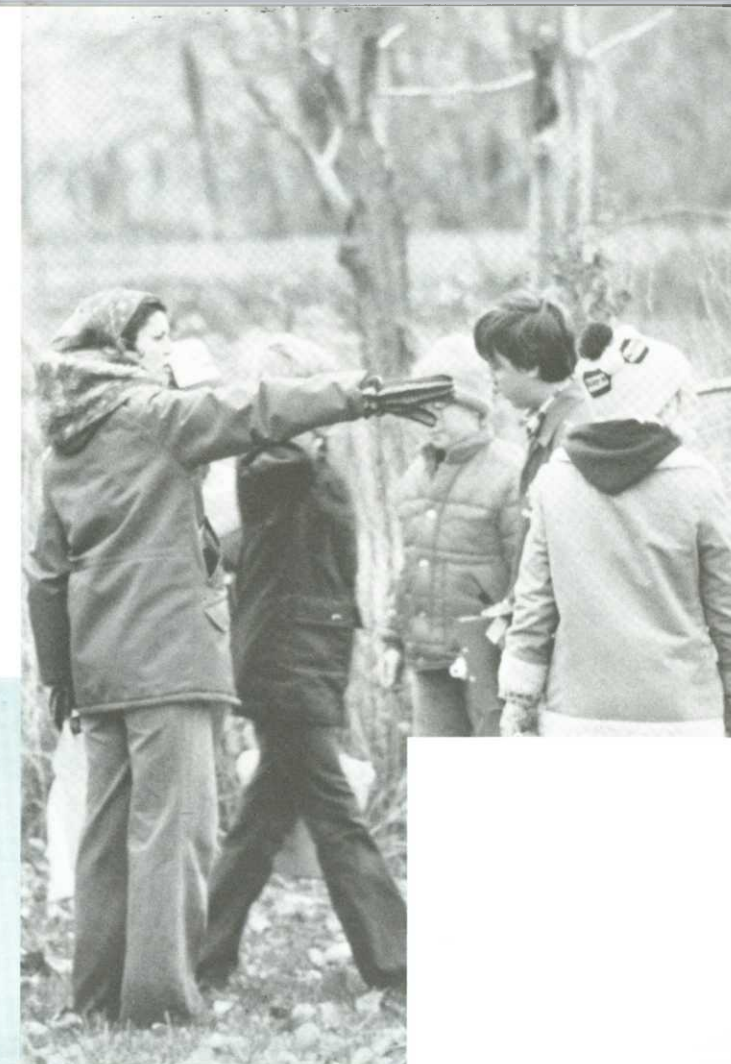
If there is no action taken on land protection, the undeveloped lands will eventually be used for purposes other than to produce wildlife benefits. At the present time, the existing federal, state and local laws, regulations and zoning ordinances do not provide adequate protection for wildlife resources and the Congressional mandate created by PL 94-466 will not be fulfilled without further action.

Some additional land will be needed for the Minnesota Valley Trail and Recreation Area but acquisition will be minimized as other public lands will be used where possible for the establishment of the trail. The purchase of land by the FWS will be done where there is need for wildlife habitat improvements and for recreational development such as access trails and trailheads. Where the existing natural cover is sufficient for wildlife and will be maintained by private landowners, the FWS will acquire an easement, leaving the land in private ownership if the land is not needed for facility development. Where there are mutual goals of the existing landowner and the FWS, cooperative agreements and leases will be used to insure the wildlife benefits. The FWS policy will be to purchase interests in land from willing sellers, except where destruction of the wildlife values are imminent or where the land is needed for facility development.

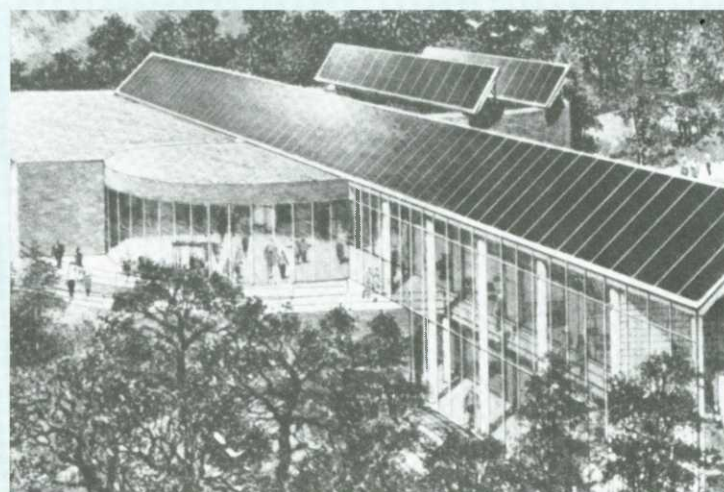
Socio-Cultural Impacts

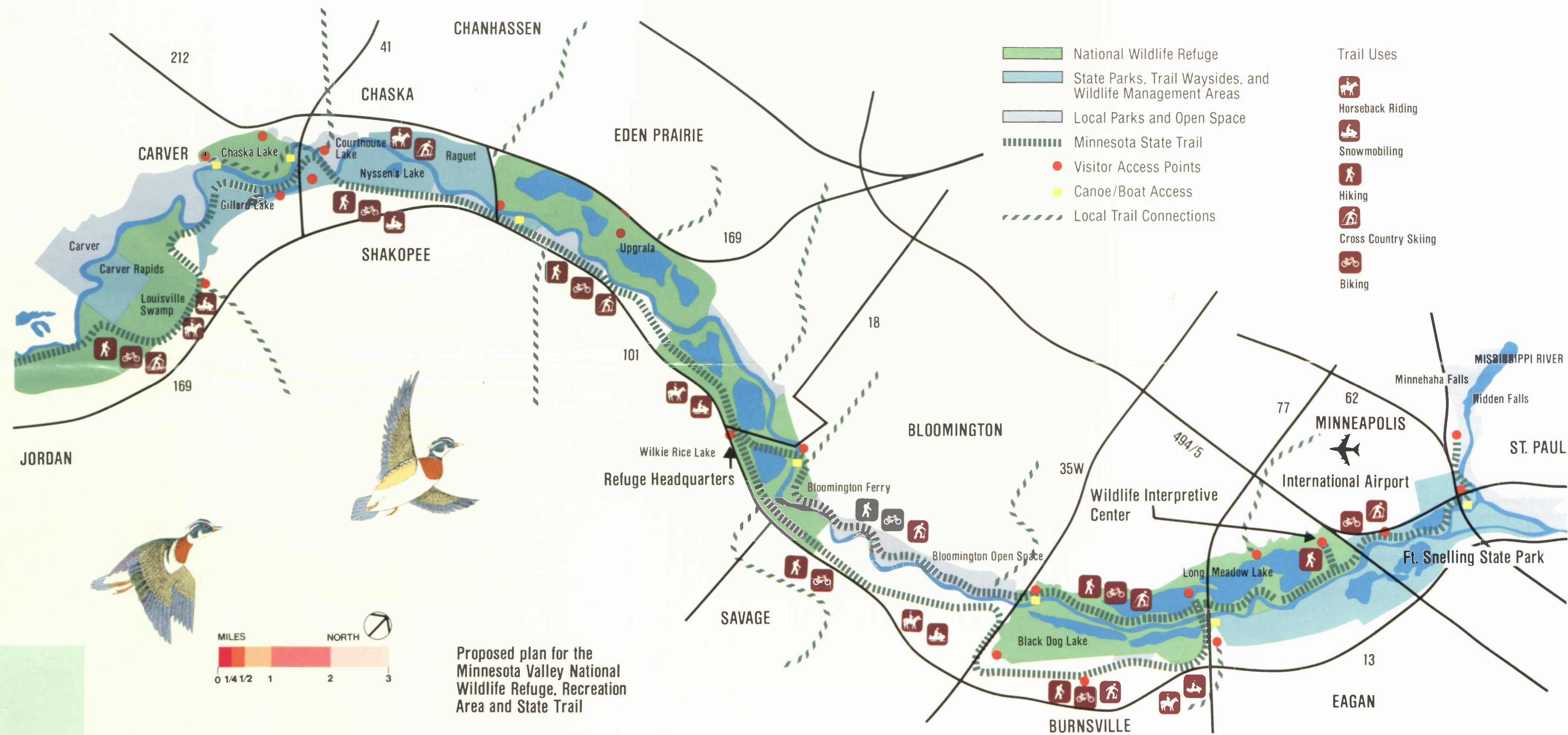
The direct and indirect impacts on the economic base of the local communities as a result of establishing the refuge should be minor. Changes to the tax structure will be variable because compensation rates will vary from parcel to parcel but some compensation will be returned to the local governments through the Refuge Revenue Sharing Act. A large portion of the property that remains to be incorporated into the refuge is zoned as floodplain. Generally, this type of property allows paving, agriculture, gravel pits and storage. Inclusion of these lands into the refuge would eliminate this type of floodplain development and subsequent habitat destruction.

A small percentage of the proposed refuge involves residential lots where the homes are at the bluff edge but the lots extend down the bluff onto the floodplain which has been designated as refuge. Three occupied residences are involved. Two are on the floodplain. Life-use of these residences by the present owners is a possibility. Acquisition will affect several farm operations, as a portion of their farming is done on the floodplain that is proposed to be part of the wildlife refuge.



However, substitute agricultural land is available in the marketplace. The landowner may also have the option to continue use of the agricultural land for several years in order to search for replacement farm land.







U.S. Fish and Wildlife Service
Minnesota Department of Natural Resources





VOLUNTEER NEWS

December 2, 1987

THANKYOUTHANKYOUTHANKYOUTHANKYOUTHANKYOUTHANKYOUTHANKYOUTHANKYOUTHANKYOUTHAN

Marilyn Kutzler, Jane Anderson, Roy McAdams, and Janet Watson have all volunteered to help keep our brochure boxes full at the trailheads.

Tom Crum donated the use of many of his beautiful wildlife slides. Some of you saw his wonderful photographs at the last volunteer event, "Turkey Talk."

Thanks Stan H., Ken I., Marilyn K., Janet W., Pam J., Dick A., Mike H., and Raj T., for offering to help clean up Black Dog road. Unfortunately, the weather did not cooperate and we had to postpone the clean up. (Probably until next spring?)

THANKYOUTHANKYOUTHANKYOUTHANKYOUTHANKYOUTHANKYOUTHANKYOUTHANKYOUTHANKYOUTHAN

Welcome Elisa Rowe, a new refuge Volunteer Ranger!

Coming Event: "Endangered Species" - December 15th, 7:30 PM, at the refuge headquarters. Refuge Secretary and Minnesota Zoo Volunteer, Pam Tucker, will inform us about wildlife that are listed as endangered. An event for refuge volunteers and their guests.

What happened on the refuge in November:

- In response to invitations from the Regional Director of the U.S. Fish and Wildlife Service and the Friends of the Minnesota Valley, Senator Dave Durenberger visited the refuge on November 23rd. During the Senator's one-half hour visit, plans for the proposed wildlife interpretive center were described and future funding for the center was discussed.
- Amos Eno from the National Fish and Wildlife Foundation toured the refuge and spoke with staff about the plans for the refuge wildlife interpretive center.
- The 1987 Metro Deer Hunt was conducted during the first two weekends of the Minnesota deer hunt season. A total of 34 deer were taken by shotgun hunters in Fort Snelling State Park and the Black Dog Unit of the refuge. Only 7 deer were taken from the refuge. 29% of the deer removed were does.
- Four trappers were selected at random from a pool of 10 applicants to trap beaver, mink, muskrat, and raccoon on the refuge.
- Refuge Manager Crozier and Senior Outdoor Recreation Planner Schomaker spent a few days in San Francisco. There, they reviewed wildlife interpretive center plans with the exhibit designers and visited a number

(over)

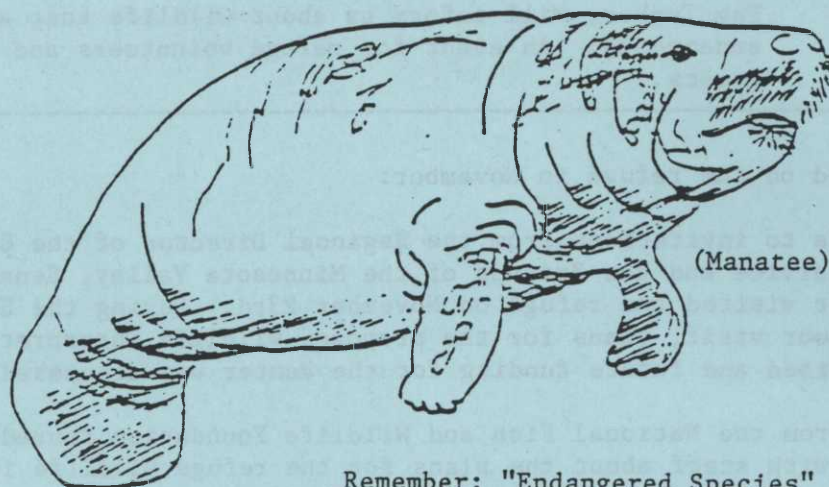
of environmental education centers including the center at San Francisco Bay National Wildlife Refuge. The building plans for the wildlife interpretive center will be 95% completed in December. The exhibit plans will be 50% completed.

- Waterfowl remained in the area later than usual this year due to the unseasonably warm weather.

SAFETY ITEMS

A special muzzleloader deer hunt will be held in the Black Dog Unit of the refuge on December 11, 12, and 13, 1987. The Black Dog Preserve trail will be closed on those days. This special hunt is being conducted by the Minnesota Department of Natural Resources and the Minnesota Valley National Wildlife Refuge in an effort to reduce the deer population.

Dress for the Season. Layers of protective clothing are more effective and efficient than single layers of thick clothing. Mittens are warmer than gloves. A scarf or hood should cover your mouth to protect lungs from extremely cold air.



Remember: "Endangered Species"
Tuesday, December 15th.
7:30 PM - Refuge Headquarters

An event for volunteers and their guests.
Hope to see you there!

K. FEEDBACK

The most positive feedback concerns wildlife and its abundance. The Minnesota River Valley is overflowing (too many, in some cases) with white-tailed deer, beaver, raccoons, Canada geese and, this year, very good breeding populations of mallards, wood ducks and pheasants with additional sightings of turkeys, coyotes, and bald eagles. There have even been sightings of peregrine falcons near refuge headquarters.

This abundance is due to favorable weather conditions, hunting or lack thereof and an improvement in the quality of the environment. There is nothing we do about the weather, but hope that we are at the beginning of a dry cycle and that the persistent high river floods are not a continuous phenomenon. Harvest management should get better as there is growing awareness, on the part of city governments, that they do have a role in harvest management as a result of their trapping and shooting ordinances. Locally, the refuge staff is having an impact on the quality of the environment in terms of reduced physical encroachment and better water quality, but the larger improvement is probably due to a greater awareness on the part of society in general, particularly in terms of the use of chemicals in the environment.

This greater abundance of wildlife is not restricted to the Valley, as wildlife seems to be on the increase throughout the state, due probably to the new farm programs and an upturn in the cycles of several forest species. It looks like a new, more prosperous decade for wildlife in Minnesota, except for waterfowl, which is experiencing setbacks on a statewide and national basis. In many respects the the Fish and Wildlife Service is like the Soil Conservation Service. Both have been in business for decades and their primary product, soil conservation and waterfowl production, is worse now than when we began our work.

Something needs to change. Maybe we need to update our thinking about waterfowl in terms of its present status and value to society. For the most part our basic management philosophy has not changed for many years, but the world and its people have changed dramatically. Attempting to provide large bag limits may no longer be realistic or even needed for the majority of the public interested in waterfowl. A smart business person would identify the needs of their largest target customer group and proceed accordingly. They would not survive long squandering a valuable but dwindling product (ducks and wetlands) on fewer and fewer customers. The North American Waterfowl Management Plan may turn that around.

Frequently the tone of this Feedback Section depends upon the mood of the Refuge Manager at the close of the calendar year and since we have just received word about the appropriation of the remaining Wildlife Interpretive Center funds, a possible large land donation, and some favorable personnel actions, I would say that things are looking pretty good for this refuge. If the tone reflected the mood over the year it would vary, but remain fairly high overall.

The addition of the Wilkie Unit to the refuge has been a real plus. It is one large contiguous management unit with a great deal of wildlife management options and an abundant wildlife population. It is fun to work with, and adds immeasurably to the accomplishment of refuge objectives.

After several years of major river flooding a year of low water was greatly appreciated, particularly since it resulted in a very good year for waterfowl production. In a way it was like a glimpse of the good old days before wetland drainage caused consistent major flooding in the Minnesota River. The Old Timers in the Valley frequently tell tales of bountiful waterfowl. Since the habitat is still here we suspect that the annual flooding has had much to do with low waterfowl production numbers and, certainly, the quick pioneering of birds back into the habitat this year would seem to confirm that.

As always, as refuge manager, it is a pleasure to be involved with Minnesota Valley National Wildlife Refuge because of the people as well as the wildlife. Somehow, we always manage to put together a super staff that is supported very well by the Regional Office staff and the interested public.